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WORK PLAN FOR REMEDIAL ACTION
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

REWAI Project M91130

Prepared for

Blake Construction Company
1150 Connecticut Avenue, N.W.
Washington, D.C. 20036-0400

by

R. E. WRIGHT ASSOCIATES, INC.
125 Airport Drive, Suite 36
Westminster, Maryland 21157

May 1992

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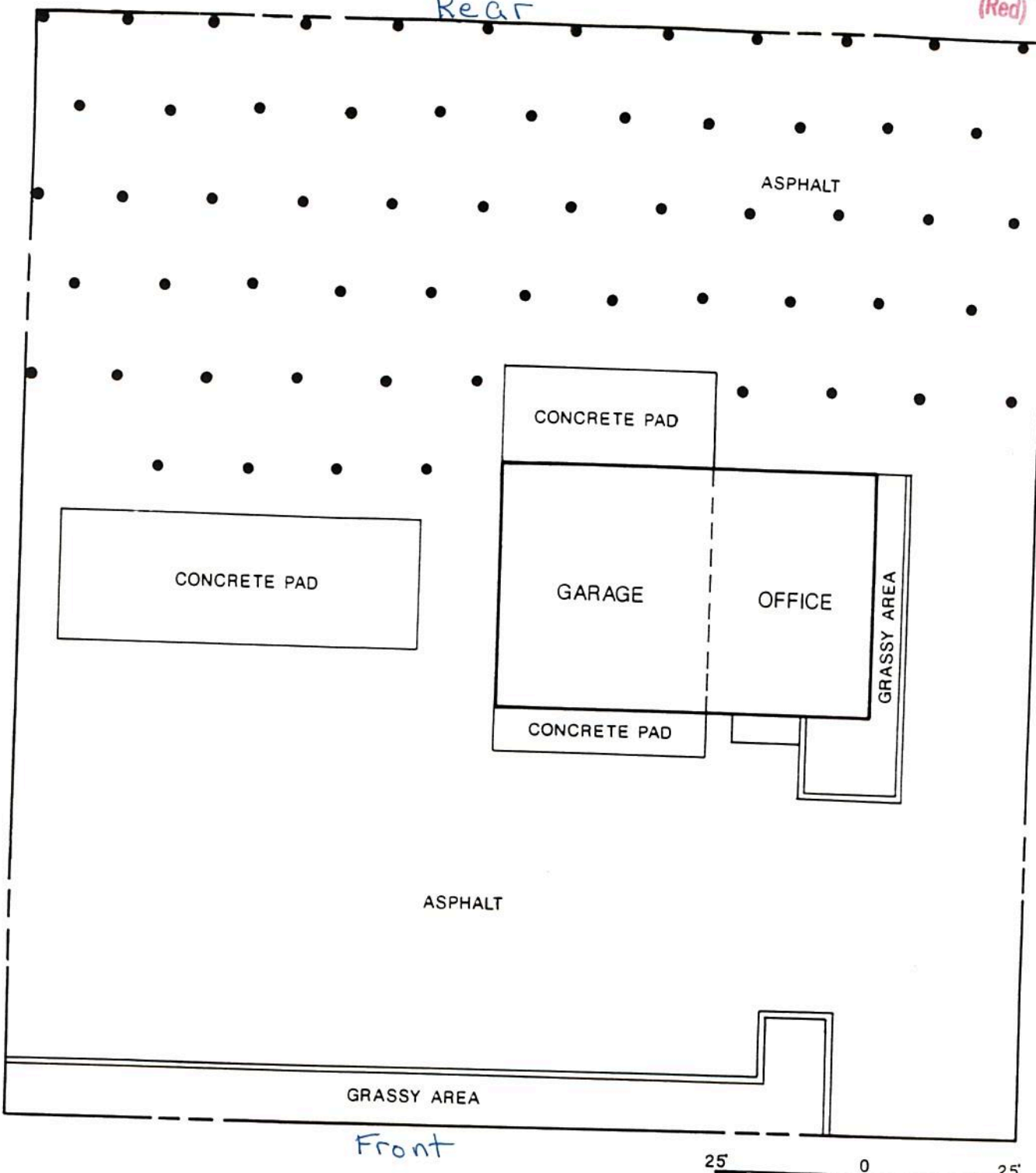

LEGEND

● PROPOSED SAMPLE POINT LOCATION

FIGURE 2

BLAKE CONSTRUCTION CO., INC.
RODGERS ELECTRIC SITE

BASE MAP WITH PROPOSED SAMPLE POINT LOCATIONS

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checked TNG	date 8/24/91	

r. e. wright associates, inc.
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WORK PLAN FOR REMEDIAL ACTION
ROGERS ELECTRIC SITE
5720 COLUMBIA PARK ROAD
CHEVERLY, MARYLAND

AUGUST 1991

Prepared for

Blake Construction Company

By

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TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION
WORK PLAN FOR REMEDIAL ACTION
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

1.0 INTRODUCTION
WORK PLAN FOR REMEDIAL ACTION
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

Remedial action consisting of the removal of PCB-contaminated materials from the Rogers Electric site (site) is being required by the United States Environmental Protection Agency (EPA). The work will be performed jointly by Blake Construction, Inc., and the United States Defense Logistics Agency (DLA). The objectives of the work are to conduct an appropriate removal action, to abate, mitigate, and/or eliminate the release or threat of release of hazardous substances at the site, and to properly transport and dispose of the hazardous substances located there. Pursuant to the draft Administrative Order of Consent (Consent Order), Docket Number III-91-xx-DC, this work plan (WP) has been developed to guide on-site operations. As prepared by R. E. Wright Associates, Inc. (REWAI), this WP is comprised of four sections.

A Health and Safety Plan (HASP) is designed to protect the health and safety of DLA-REWAI workers and subcontractors, other personnel, and the public from the hazardous substances and work-related health and safety hazards during performance of the work, and includes provisions for site control, site security, and fire protection. REWAI subcontractors have the option of providing HASPs for their workers. These must be at least as stringent as the overall HASP herein, and are subject to approval by REWAI's Health and Safety Officer. In addition, the subcontractor selected to perform the remedial work will submit a spill contingency plan to address unexpected spills or releases during the course of work.

The next part contains five sections describing methods of site characterization, remedial action alternatives, and storage and disposal procedures.

The following part outlines laboratory quality assurance, quality control (QA/QC) and chain-of-custody procedures which comply with EPA guidance document QAMS-005/80.

The last section is an elaboration of a schedule for implementation of the work plan, in accordance with the Consent Order deadlines and the time anticipated for on-site operations.

The remedial action will proceed in five steps, as follows:

1. Surface and miscellaneous material sampling and analysis will be performed to determine the presence and concentration of PCB contamination in drums, transformers, and other equipment currently on the site.

2. Surface remedial action and disposal will remove and properly transport and dispose of PCB-contaminated equipment and materials. Included in these activities are the removal of drums, transformers, and welder cores by DLA.

3. Subsurface investigation, sampling, and analysis will determine the aerial extent, depth, and concentration of PCB contamination on asphalt and in soils beneath the site.

4. Subsurface remedial action could include one or more treatment or disposal scenarios, depending on the

results of the subsurface investigation. In areas where contaminant concentrations and related site conditions meet the necessary criteria to affect in-situ treatment technologies, those options may be evaluated and pursued. Such treatment technologies may include, but not be limited to, lime treatment, vitrification, or extraction methods. In other areas of the site where the contaminant concentrations or other criteria are not within the acceptable ranges to allow in-situ treatment, removal and off-site disposal will be performed.

5. Confirmatory sampling and analysis will follow the remedial actions and be conducted in accordance with EPA Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup (EPA-560/5-86-017; May, 1986) to verify that the site has been remediated.

The overall schedule for these activities, as shown in this work plan, is predicated upon EPA review and response time.

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2.0 HEALTH AND SAFETY PLAN
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

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1130CP

HEALTH AND SAFETY PLAN
TABLE OF CONTENTS

LIST OF FIGURES

1130HS

2.0 HEALTH AND SAFETY PLAN FOR ROGERS ELECTRIC SITE CHEVERLY, MARYLAND

This Health and Safety Plan (HASP) has been prepared for Blake Construction Company (Blake) by R. E. Wright Associates, Inc. (REWAI) to address personnel health and safety requirements for soil, pavement, drum, transformer, and other materials sampling at Rodgers Electric Site, Cheverly, Maryland (Figure 1).

To assure proper personnel protection during the course of the investigation, this HASP provides a mechanism to permit modifications, based upon existing, measured, and observed conditions. This HASP is designed to identify health and safety considerations when dealing with polychlorinated biphenyl (PCB) contamination. PCB is an eye, skin and mucous membrane irritant. PCBs are treated as materials with poor warning properties, as no quantitative data are available concerning its odor and irritation thresholds. There is no "real-time" monitoring equipment which can assess the PCB concentrations emanating from the various testing and remedial activities at the Rodgers Electric site. This poses a problem when protective levels need to be defined on an immediate basis. Therefore, conservative respiratory action levels will be used, until air monitoring results are available. A detailed description of PCB, its properties, and hazards is contained in Appendix A.

Prior to initiation of any on-site work for Blake a listing of all employees who may be on-site, and their training, should be provided to enable REWAI to evaluate the qualifications of personnel planned for use during the investigation. Proposed subcontractor personnel qualifications should also be submitted to allow prequalification prior to site activities.

NOTE: BASE MAP FROM THE WASHINGTON DC AND VICINITY, ADC OF ALEXANDRIA VA, 1989.

FIGURE 1

BLAKE CONSTRUCTION
RODGERS ELECTRIC SITE
SITE LOCATION MAP AND HOSPITAL ROUTE

drawn SS	approved	drawing no. 91130-002-AA
checked	date 5-9-91	

r. e. wright associates, inc.
earth resources consultants
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Personnel Responsibilities

Compliance with this HASP is required of all workers and third parties who enter the remediation area. To preclude unnecessary exposure to contaminants, all investigations should be conducted with only the required number of personnel needed at a given time, to satisfactorily complete the assigned tasks. Also, to achieve the highest level of worker safety, all on-site work should be performed under the guidance of the Project Health and Safety Officer (PHSO).

Project Health and Safety Officer

The PHSO would be appointed by REWAI's Project Director, and approved by a REWAI corporate officer. In addition to determining the levels of personnel protection necessary for each activity performed on-site, the PHSO would have the necessary expertise to execute the HASP.

The PHSO would have the following responsibilities:

- Establish levels of personnel protection required for each work activity on a daily or immediate basis, in fulfillment of the requirements of the approved HASP. Levels of protection would be established on the basis of task and continuous air monitoring results in accordance with the specific provisions of the HASP. In the case of conflicting data, the highest indicated safety factor would be implemented, as a health precaution.

- Implement established safety guidelines.

- Assure that air monitoring and safety equipment is calibrated and in proper working order.

- Assure that personnel are properly trained in safety equipment use and limitations.

- Monitor decontamination procedures so that they are carried out effectively.

- Record analytical data, weather conditions, worker exposure, protective equipment in use, and any unusual event that may occur during on-site activities.

- Document HASP revisions including the specifics and rationalizations for the change, made with the approval of the PHSO.

The PHSO must, as a minimum, have the following qualifications:

- At least 40 hours of health and safety training in compliance with OSHA 29 Code of Federal Regulations (CFR) 1910.120 requirements including training in the use, capabilities, and limitations of dermal and respiratory personal protective equipment (PPE).

- Eight hours of additional training for managers and supervisors.

- Three days of actual field experience under the direct supervision of a trained and experienced supervisor.

- A knowledge of potential site hazards.
- A working knowledge of the capabilities and limitations of air monitoring equipment.
- A familiarity with methods used in performance of each work activity at the site and support areas.

It is within the authority of the PHSO to refuse access of any unauthorized or untrained personnel to the site, eject personnel from the site for noncompliance with the HASP, or cease operations due to exposure levels anticipated or encountered that are beyond the scope of personnel preparedness.

General Guidelines and Procedures

Medical Surveillance

All personnel working within the study area(s) are required to adhere to a medical surveillance program which, as a minimum, satisfies OSHA Regulations 29 CFR 1910.120. Its purpose is summarized below:

- Establish a baseline for the pre-site health status of each employee;
- Determine if any medical abnormalities exist which might seriously interfere with an employee's job performance; and

- Determine the capacity of the individual to perform work while using PPE.

Each individual must undergo the following medical tests prior to his access to the site:

- A medical history which includes past work exposure to hazardous chemicals or any other history of blood, nerve or inherited medical problems. This should include documenting any history of renal or liver disfunction, prescription and non-prescription drugs routinely taken, alcohol intake, and systemic infections. Exposure to materials such as cleaning agents, insecticides, and other toxins outside of the current work situation should also be documented.

- Laboratory tests must be completed including:

  - A complete blood count (Method SMK-23) with red cell count, and white cell count, with differential platelet count, hematocrit, hemoglobin, red cell indices (MCV, MCH, MCHC, serum bilirubin, and reticulocyte count), and any additional tests where, in the opinion of the attending physician, abnormalities in the components of the blood are detected,

  - Urinalysis,

  - Chest X-ray, frequency at the discretion of the attending physician,

- Electrocardiogram, and

- Pulmonary function test, including tests of lung ventilation to measure forced expiratory volume in one second and forced vital capacity, and other factors such as Full Expiratory Force (FEF), Respiratory Volume (RV), and Total Lung Capacity (TLC) at the discretion of the attending physician.

A physical examination must be required during the course of the investigation in situations of possible exposure on the site due to spill, sudden release of chemicals, or failure of PPE; complaints from the on-site employees which indicate a potential problem; or as a required part of a routine medical surveillance program such as 29 CFR 1910.120. Such an employee examination may be mandatory upon their completion of work under the contract. In every case, the examining physician should certify, in writing, the worker's fitness for work on the site and provide a copy of the certification to the worker, their employer, and REWAI.

At the present time, REWAI medical records and maintenance of pre-project physicals is being conducted by:

(b) (6)

[redacted]

Documentation

Records of all factors affecting worker safety and health will be maintained by REWAI. This would include analytical data, weather conditions, worker exposure, PPE use, and any unusual event that may occur on-site. In addition, employee health monitoring data, health and safety planning documentation and contingency plan communications and contacts will be maintained by REWAI until completion of the contract, and then transferred to Blake, if so desired.

REWAI's On-Site Coordinator (OSC) and PHSO would be responsible for recording field data. The REWAI Project Manager would be responsible for maintaining up-to-date files of medical and safety-related items.

REWAI will retain the medical records of on-site workers only relating to findings and information which directly affect job performance. These records must be maintained in a confidential manner such that only authorized persons such as corporate officers of the employer or REWAI medical staff or contracted medical personnel, the individual, the individual's personal

physician, or the individual's representative may have access to the reports. Upon written request, the individual may obtain a copy of the medical file from the employer or physician. Upon death, retirement, resignation, or other termination of service, the records must be retained by the employer or contracting physician for a period of 30 years.

Safety Training

All full-time workers must be required to complete a minimum safety training program for hazardous waste site work consistent with 29 CFR 1910.120, including but not limited to:

- Respiratory protection (instruction and prework briefing in respiratory protection and respirator fit testing).
- Physical and chemical properties of suspected and known hazardous materials (general instruction and prework site-specific briefings).
- Site operating procedures (instruction and site-specific prework briefing) in levels of personal protection, work zones, perimeter control, decontamination, evacuation and self-rescue, and emergency procedures and signals.

All others who enter the site on a less-than-full-time basis require site-specific instruction to meet the requiremetns of 29 CFR 1910.120 including:

- The use of respiratory equipment (for individuals without previous training).

- Emergency procedures.
- Review of suspected hazards.
- Site work zone definition and work plan.
- Decontamination procedures.

Specific instruction would be provided by the PHSO or qualified personnel. These individuals would be required to read the General Work Rules as outlined in a later section of this document and complete all necessary forms.

Construction Activities

All on-site construction activities will be in accordance with Occupational Safety and Health Administration (OSHA) Standards (29 CFR 1926), in particular, but not limited to:

- Subpart E, Personal Protective and Life Saving Equipment
- Subpart F, Fire Protection and Prevention
- Subpart I, Tools - Hand and Power
- Subpart K, Electrical
- Subpart L, Ladders and Scaffolding
- Subpart P, Excavation, Trenching, and Shoring
- Subpart Q, Concrete, Concrete Forms, and Shoring

Site Control Plan

To reduce the potential for contamination transfer from a site due to site operations, the following control procedures should, as a minimum, be implemented. The site should be divided into

designated support areas and work zones where the investigations are to be conducted. With this approach, the efforts to contain the hazardous substances would be concentrated in the areas where protection is most necessary during field activities.

Work Zones

Based on background reports, PCB contamination is potentially spread throughout the site. Thus the entire area of excavation and drilling sites may be referred to as an "exclusion zone." Entry and exit is regulated by a fence around the entire property.

For a PCB sampling investigation, the work zone will be defined as a minimum of 30 feet radius away from invasive activities, and areas where air emissions above background are measured. All personnel entering a work zone must wear the prescribed PPE for that area. At the work zone entry and exit point, and between the work zone and command post, a contamination reduction corridor shall be required to regulate entry and implement decontamination procedures for personnel and equipment.

Project Command Post

A command post has been designated as the outfitted office trailer set up outside the gate entrance. Since the trailer may be down wind, measures to prevent dust emissions will be strictly enforced. Personnel commuting between the front gate and the exclusion zone must have protective equipment. Vehicles should be parked off site.

The command post will be the center of communications for on-site operations. Where a work area is within general access of a telephone, the command post shall be outfitted for telephone service for field-to-office communications and for emergency calls. Emergency phone numbers must be posted in a conspicuous location near the phone.

Most of the work on-site will be performed within a limited distance of the command post; therefore, site communications will utilize telephones that are available.

Support Zone

This area will provide space for worker wash-up, work clothes storage, and dress-out area. Miscellaneous safety equipment will be stored in the support area for logistical needs and emergency preparedness.

Work Zone Security

Work sites should only be opened to the predetermined number of authorized and trained personnel to limit unnecessary potential exposure of personnel to contaminants. Personnel authorized to access the site could include designated Blake personnel, REWAI personnel, government personnel and subcontractors. All outside gates should be securely locked at night.

It will be the responsibility of the PHSO or designated health and safety officer (DHSO), with the assistance of the designated Blake personnel, to keep unauthorized personnel away from the exclusion area during work activities. During periods of inactivity, the equipment should be secured to minimize the

opportunity for physical hazard accidents. Subsurface intrusions should be covered overnight to reduce any hazard that may be posed.

Operating Procedures

Air Monitoring

The PHSO will continuously assess conditions in the working environment to provide adequate levels of personal protection. The use of selected air monitoring equipment throughout the remediation will provide information to continuously evaluate levels of protection.

Adequate assessment of volatile organic compounds (VOCs) will be determined in the field based on the site survey. Soil samples and bulk samples of other areas of contamination will determine the nature of air sampling required.

PCB air monitoring will be performed using National Institute for Occupational Safety and Health (NIOSH) Method 5503. This method uses low flow (maximum of 0.2 liters per minute) personal air sample pumps. The sampling configuration is two-staged. Particulate dust is collected on 13 or 25 millimeter (mm) fiberglass filters. PCB's that penetrate the filter are collected on a 6 mm outside diameter Florasil tube. This method has a detection limit ranging between 0.4 to 4 micrograms per cubic meter (ug/m^3). The OSHA Permissible Exposure Limit (PEL) is 500 ug/m^3). The NIOSH Threshold Limit Value (TLV) is 1 ug/m^3 for PCB with 54 percent chlorine. Each personal air sampling pump must be calibrated for air flow at least once in the beginning and once at the end of the day.

In summary, environmental air monitoring equipment available for use at Rodgers Electric includes the following equipment:

- Foxboro Century II organic vapor analyzer or flame ionization detector (OVA or FID).
- MSA Samplair, Sensidyne, or Supelco personal air sample pump and Florasil detector tubes.
- Neotronics Exotox combustible gas and oxygen indicator (CGI).

Air Monitoring Locations and Frequency - It is the responsibility of the PHSO to assure that air and soil monitoring is carried out to establish safety guidelines and PPE requirements. The monitoring can be performed by a qualified person designated by the PHSO and under the direction of a qualified industrial hygienist for specific on-site activities. Air monitoring should take place as follows:

- During excavation activities, representative personnel and ambient air sampling will be performed. Initially, a minimum of two, four-hour samples should be obtained from each pump, daily. Refer to NIOSH Method 5503 (Appendix B) for pump flow rates and the optimum range in air volumes sampled.
- Prior to beginning work each day, the site-support area and contamination reduction corridor must be monitored.

- When conditions change, within the exclusion zone, appropriate air monitoring utilizing the OVA must be performed to assess the degree of contamination in ambient conditions. The readings would be used to establish levels of personnel protection for individuals working in that area. The designation level of personnel protection levels is based on the provisions established by the United States Environmental Protection Agency (EPA) (Appendix C).

- The PHSO must supervise the continuous monitoring of invasive activities and advise personnel of the hazard and the level of protection required for each respective task.

- When air monitoring indicates levels of contaminants are measured at or above 50 percent of OSHA PELs, work would have to immediately cease until such time as appropriate action is established to reduce exposure. This may require the upgrade of PPE or reevaluation of the need to proceed.

- The PHSO must supervise the fitting of PPE and shall determine the option to proceed.

Personnel Protection

Personnel health and safety protection shall follow the guidelines provided by this HASP. Modifications to the HASP may be made by the PHSO with the approval of the REWAI Project Manager and Project Director. Such modifications can occur on a day-today basis as conditions change, based on ongoing

monitoring. Any necessary revisions must be fully documented by the PHSO to include the specifics and rationalizations for the change.

PPE associated with designated levels of protection will be available and used by all personnel in areas designated by the PHSO as requiring that level of protection, unless other specific equipment is provided for a certain activity by the plan.

PPE will be stored in a clean, dry environment prior to its usage. Disposable equipment shall remain, in its original manufacturer's packaging to ensure its integrity. The equipment will be inspected by the PHSO or his designee prior to its usage. PPE that is assigned to a specific end user is subject to inspection by the PHSO at any time.

Determination of Level of Protection Requirements - Hazardous materials suspected at the Rodgers Electric site are PCB oils in drums, transformers, soils and on pavement. Sampling and handling activities can potentially expose workers to dermal contact with PCB. In order to protect personnel from PCBs, full-face airpurifying respirators fitted with GMC-H filters will be required when dust or splash protection is needed.

Appropriate levels of personnel protection must be established on the basis of work task and ambient air-monitoring responses. This criterion would be applicable to all activities unless specific protection requirements for a certain task are addressed as a modification to this HASP. Levels of personnel protection should be as follows:

- Level D - Organic vapor concentration at background: regular worker uniform including steel-toed safety shoes, hard hat and Tyvek coveralls. Level D will be considered the minimum protection level for work conducted within any exclusion zone on-site.

- Level C - Total organic vapor concentration from 5 parts per million (ppm) to 25 ppm above background or particulate PCB concentrations greater than 0.25 milligrams per cubic meter (mg/m^3) requires a full-face, air-purifying cartridge respirator equipped with GMC-H type filter cartridges. In addition to respiratory protection, inner and outer chemical resistant gloves will be worn. Disposable Tyvek coveralls and chemical-resistant boots will also be employed for dermal protection. If the activity involves the potential for splash of contaminants, dermal protection will be upgraded to Saranex-coated Tyvek with hood or chemical-resistant rainsuit over Tyvek. All Level C work will be performed with two-member teams as a minimum.

- Level B - Organic vapor concentrations greater than the Immediately Dangerous to Life and Health (IDLH) level listed in the NIOSH, constitute a Level B condition. An oxygen-deficient atmosphere would be the primary cause of this PPE level. However, the presence of volatile organic vapors at a level adequate to cause an oxygen deficiency would pose a significant explosion potential. Explosions are not addressed within the EPA levels of protection, but are addressed later in this HASP.

Dermal Protection - In general, dermal protection levels would correspond with the respiratory protection level in use during an activity as described in other sections. For most noninvasive activities on the site, disposable Tyvek coveralls will provide protection against nuisance dust. When work tasks are such that invasive activities are performed, disposable Tyvek coveralls will provide protection against dust. If these work tasks are such that splashing of contaminated water is possible or imminent, dermal protection would be upgraded to coated Tyvek (Saranex) or chemical-resistant rainsuit over Tyvek. This determination will be made by the PHSO as required.

Chemical- and abrasion-resistant outer gloves and inner chemical-resistant disposable gloves would be required in the work zone to provide adequate protection of hands and assist in preventing transfer of contaminants. As much of the investigation may require handling of possibly contaminated equipment, groundwater, or soil, chemical-resistant gloves shall be required for all on-site work with these materials. Various operations which require dexterity and do not necessitate the abrasion-resistant feature of outer gloves could be performed with the inner gloves only, at the direction of the PHSO.

The following commonly used materials are considered excellent to good chemical protective clothing for PCB:

- Saranex

The following commonly used materials are considered good to fair chemical protective clothing for PCB:

- Polyvinyl alcohol
- Viton
- Teflon

Eye Protection - PCBs are an eye irritant. PCBs in dust and air-borne particulates will not be detected by the monitoring program. Therefore, eye protection requirements should correspond to respiratory protection levels, and full-face respirators would be required in all work areas designated as Level C or higher.

Specific air monitoring must be performed and the results will be used by the PHSO along with task-specific requirements to establish levels of personnel protection for all site activities. The following sections provide preestablished protection requirements for some task-specific items or portions of tasks that may be performed on-site.

Task Specific Personnel Protection Guidelines

Drilling - All drilling conducted on the site inside the exclusion zone will be initiated under Level C respiratory protection dermal protection. This may be modified to higher levels prior to drilling by the PHSO, due to site-specific requirements. Minimum protective equipment during drilling must be:

- Saranex coverall.
- Chemical-resistant gloves.

- Outer chemical-resistant boots.
- Steel shank and toe safety shoes.
- Hard hats.
- Goggles and face shield.
- Full-face, air-purifying cartridge respirator within easy reach.

Soil Sampling - Respiratory protection requirements for each of these activities would be established by air monitoring of the sampling area prior to and during sampling. Since soil sampling will occasionally be associated with drilling, the requirements established for that task above would be used. If soil sampling occurs independent of a drill rig, continuous air monitoring must be conducted to establish the necessary respiratory protection requirements. Minimum protective clothing for all personnel involved in soil sampling within the exclusion zone must include:

- Tyvek coverall.
- Chemical-resistant gloves (optional).
- Outer chemical-resistant boots (optional).
- Steel-shank and toe safety shoes.

Drum and Transformer Sampling- Respiratory protection will be in Level C. Dermal protection will be in Level C to protect against splash. Minimum protective equipment during sampling must be:

- Saranex coverall.
- Chemical-resistant gloves.
- Outer chemical-resistant boots.
- Steel shank and toe safety shoes.
- Hard hats.
- Goggles and face shield.
- Full-face, air-purifying cartridge respirator within easy reach.

Soil Excavating - Initial respiratory protection will be Level C. Continuous air monitoring must be conducted to evaluate the air quality outside the command post, and at the downwind side of the property border. Site dust control may be required, to protect personnel in the command post and persons downwind of the site. Minimum protective clothing for all personnel involved in soil sampling within the exclusion zone must include:

- Tyvek coverall.
- Chemical-resistant gloves.
- Outer chemical-resistant boots.
- Steel-shank and toe safety shoes.

- Hard hats.
- Safety glasses or goggles.
- Full-face, air-purifying cartridge respirator.

Fire Prevention Plan

Due to the potential presence of flammable oils at the site, the following safety guidelines must be followed to prevent the possibility of explosion:

- Use of lighters, matches, or torches will be permitted within the exclusion zone or contamination reduction corridor only if screening of the area with a FID and CGI indicates the absence of organic vapors suggesting conditions for safe operation. Absolutely no smoking will be permitted in either the exclusion zone or contaminant reduction corridor.
- All monitoring equipment will be intrinsically safe or explosion-proof if used in areas of possible explosive atmospheres.
- Fire extinguishers must be within reach of the motorized equipment operator, at the contamination reduction corridor, and in the command post.

Decontamination Procedures

All decontamination operations should be performed inside the contamination reduction corridor and supervised by the PHSO. The decontamination corridor should be equipped with brushes, plastic bags, and drum storage. Disposable outer wear and contaminated disposable equipment will be collected, drummed, and transfered to the custody of the subcontractor or alternate assigned to the project by REWAI.

The PHSO would be required to visually inspect PPE and clothing for residual soil or oil contamination to determine if further decontamination procedures are required prior to passage into the support area. Any equipment which cannot be adequately cleaned must be double-bagged and marked as such until more thorough decontamination can be performed.

The following decontamination facilities as a minimum should be provided in the support area:

- Hand washing facilities.
- First aid kit.
- Eye wash station.
- Fire extinguisher.

Proper on-site decontamination procedures, the use of disposable outer clothing, and field wash of hands and face before leaving the decontamination corridor will effectively minimize the opportunity for skin contact with contaminants.

Personnel Decontamination Procedures

Decontamination procedures to be employed for various levels of personnel protection should be as follows:

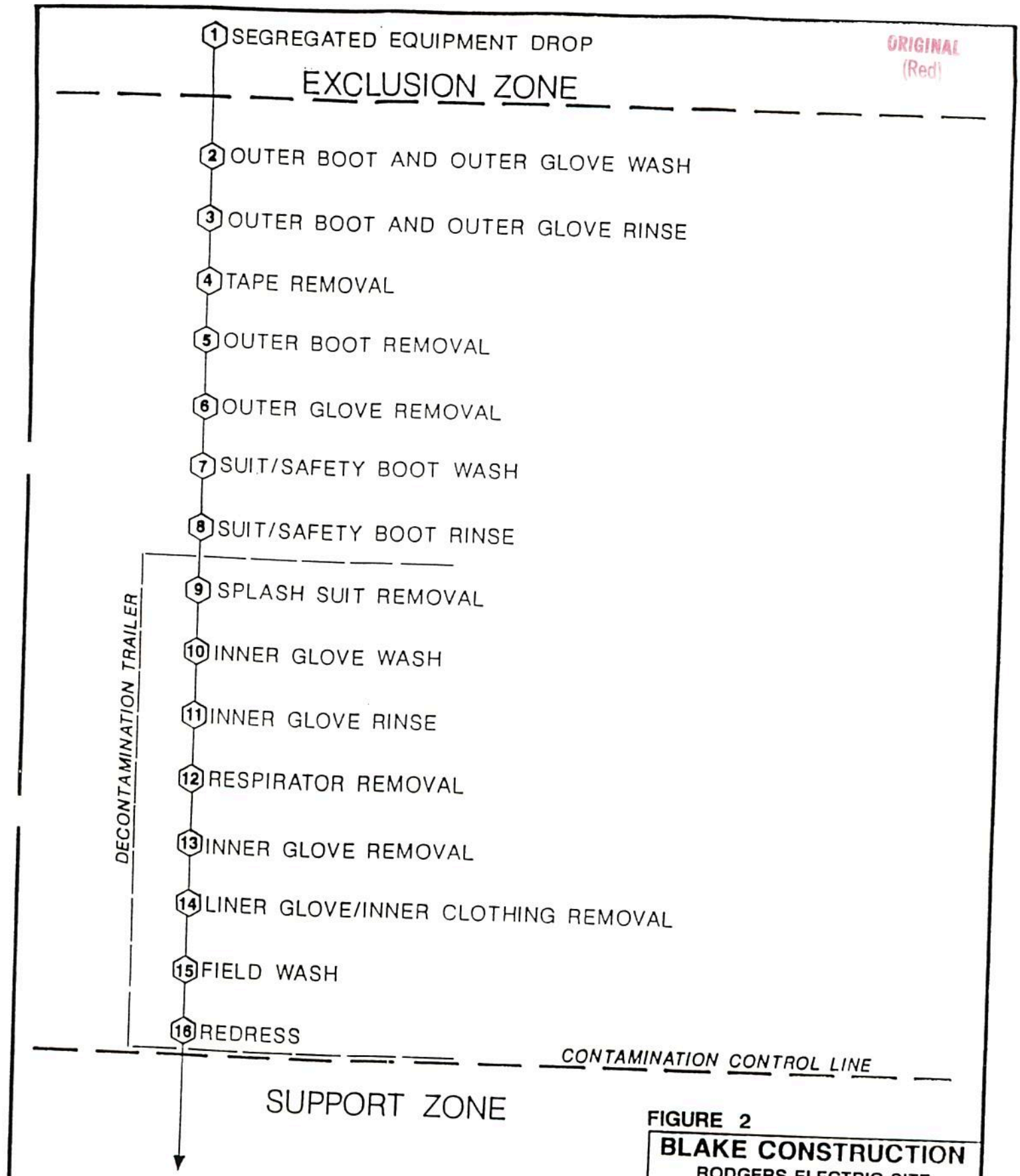
Level D decontamination would consist of:

- Potable water wash and potable water rinse of boots and outer gloves.
- Bag or drum all disposable clothing.
- Field wash of hands and face.

Level C decontamination would consist of the items in Figure 2.

Level B decontamination is the same as Level C decontamination with the addition at Step 11 of the removal of the self-contained breathing apparatus (SCBA).

Respirators should be assigned to personnel working on the site for a full-time basis and decontamination of this equipment would be the responsibility of the assignee. Respirators must be washed in mild soap or other approved cleanser/sanitizing agent and warm water solution and rinsed following each day's use. Following field wash and rinse, respirators must be allowed to drip dry in the support area and be maintained in a clean storage area. All respirators are subject to inspection by the PHSO to verify cleanliness and maintenance conformance by the assignee.



ORIGINAL (Red)

FIGURE 2

BLAKE CONSTRUCTION
RODGERS ELECTRIC SITE
SCHEMATIC FOR
LEVEL C DECONTAMINATION

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checked CB	date 5-8-91	

R. B. wright associates, inc.
earth resources consultants
middletown pennsylvania

Equipment Decontamination

All support vehicles associated with invasive activities or operating within the exclusion zone must be thoroughly cleaned prior to leaving the site. Other support equipment such as drilling and excavation equipment, tools, pumps, and generators should be cleaned with high-pressure hot water or steam as needed during the field effort and prior to equipment being taken from the site. Specific procedures for decontamination of field equipment would be established by a Field Sampling Plan in order to prevent cross contamination by the sampling equipment.

Personnel protection during equipment decontamination should be similar to that which is required in the work area in which the equipment was used. For example, a drilling rig which was used in a task which required Level C protection would be decontaminated under similar protection guidelines. Since there is a hazard of splash of decontamination fluids during high-pressure cleaning of vehicles, personnel should be required to perform decontamination wearing a minimum of chemical-resistant rainsuit outer clothing and face shield or full-face cartridge respirator.

Contingency Planning

Emergency contacts and phone numbers are provided in this section. In the event of an emergency, the PHSO and the OSC will respond by controlling the incident and informing the appropriate contact.

On-Site Evacuation Routes

If site evacuation should be required, all personnel should move upwind of the apparent problem area. Care should be taken to avoid impeding the forward motion of motorized vehicles on Park Road adjacent to the facility. This street will provide adequate evacuation routes to the east and west.

Emergency Procedures

In the event of an emergency situation such as fire, explosion, release of toxic gases, dust, etc., a vehicle horn will be sounded for approximately 30 seconds indicating the initiation of evacuation procedures. All personnel in Exclusion Zone, Work Zone, and Support Zone will evacuate and assemble near the front gate or other safe area as previously identified by the PHSO on-site. The PHSO in coordination with the REWAI Project Manager will have the authority to initiate proper action for efficient and safe site evacuation and assessment of emergency situations. The PHSO will see that the proper authorities are notified for possible evacuation of the surrounding residences. A list of emergency phone numbers and the hospital route are in Appendix D. This information should be prominently displayed in the command post.

Except for emergency personnel such as firemen, police officers, or medical rescue teams, under no circumstances will incoming personnel or visitors be allowed to proceed into the area once the emergency signal has been given. The PHSO must see that notice of site hazards are given to local emergency authorities prior to start of work on-site. During an emergency, the PHSO will control access for emergency equipment and will assure that

all work has been shut down and personnel evacuated once the alarm has been sounded.

For more detailed medical procedures, see Appendix A, pages 4 through 6.

- Skin contact: In the event of personnel exposure to potentially toxic or hazardous contaminants by skin contact, the following procedures will be employed:

  - Wash skin and rinse with copious amounts of soap and water for at least 15 minutes,

  - Follow with application of castor oil or 10 percent ethyl alcohol

  - Then transport, to the nearest hospital or poison control center. Dialing the emergency number 911, will inform a dispatcher and proper medical response will be initiated.

- Inhalation: In the case of inadvertent inhalation of higher (potentially toxic) levels of contaminants:

  - Victims should be moved to fresh air,

  - Decontaminate (if necessary),

  - Transport immediately to the local medical facility.

- Ingestion: If ingestion of a potentially toxic or hazardous substance or unidentified substance had occurred, the victim must be decontaminated and transported to the local medical facility.

- Injury: In the event of a personnel injury, emergency first aid would be applied on-site as deemed necessary. The PHSO must be trained in first aid and would be on-site during field operations. The victim should be decontaminated as soon as possible and transported to the local medical facility if needed.

- Fire or explosion: In the event of a fire or explosion, the site must be evacuated immediately and the appropriate emergency response groups on the area will be notified as soon as possible.

- Spill: The removal contractor is required to keep a spill contingency plan on site.

- Environmental incident: In the event of an environmental incident caused by a spill or other spread of contamination outside the exclusion zone, personnel should attempt to secure the spread of contamination if possible. The PHSO will be in charge of contacting Blake and the emergency response groups, and the PHSO will direct first aid procedures, and secure the site.

Emergency Contingency Plan Critique

In the event any of the contingency plans are implemented, each of the personnel involved shall complete an incident report as soon as practical. The incident report will be given to the project manager, who will forward copies to the project director, PHSO, and project file, where it will remain available for future reference.

General Work Rules

- Eating, drinking, chewing gum or tobacco, smoking, or any other practice that increases the probability of hand-to-mouth transfer and ingestion of hazardous materials must be prohibited on-site.

- Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other similar activity.

- Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

- Excessive facial hair which interferes with satisfactory adjustment of the respirator is defined as a safety hazard and will not be allowed on personnel required to wear such protective equipment.

- Contact with contaminated or suspected contaminated surfaces should be avoided. Whenever possible, avoid personnel and equipment contact with puddles, mud, and other discolored surfaces. Do not place equipment or sit on a known or suspect contaminated surface.

- Medicines and alcohol can exaggerate the effects of exposure to toxic chemicals. Prescribed drugs should not be taken by personnel on response operations where the potential for absorption, inhalation or ingestion of toxic substances exists unless specifically approved by a qualified physician.

- Normal eye glasses are not compatible for use with full-face respiratory equipment, and contact lenses have the tendency to trap vapors between the eyes and the lense, allowing vapor absorption to the body via eye tissue. In addition, dislodged contacts can be a problem when on-site. Therefore, use of these devices is not allowed. Prescription lense inserts are available for most full-face respirators and should be used.

- The buddy system will be maintained in all operations within the exclusion zone. Personnel should maintain communications with their assigned partner and watch for signs of fatigue, exposure, etc.

- No work will be conducted in the exclusion zone without appropriate supervision and air quality monitoring.

- The Personnel Health and Safety Compliance Affidavit must be signed and dated by each person directed to work on the site on a full-time basis.

ORIGINAL
(Red)

AFFIDAVIT

Since all personnel working on-site are required to read and comply with the HASP, the following safety compliance affidavit shall be signed and dated by each person directed to work on the site on a full-time basis, and returned to the Project Manager.

I, _____ of _____
Name Company

have read the Health and Safety Plan for Rodgers Electric site. I agree to conduct all on-site work in conformity with the requirements of the HASP, and I acknowledge that failure to comply with the designated procedures in the Health and Safety Plan may lead to my removal from the site, and appropriate disciplinary actions by my employer.

_____ _____
Signature Date

ORIGINAL
(Red)

3.0 ON-SITE ACTIVITIES PLAN
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

3.0 ON-SITE ACTIVITIES PLAN
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

The following plan addresses the remedial activities required at the Rogers Electric Site (site), Cheverly, Maryland. The basis of the plan represents information from a previous site survey conducted by representatives of R. E. Wright Associates, Inc. and Clean Harbors of Baltimore to determine surficial clean-up requirements. Discussion is outlined by the following objectives and phases.

Mobilization
Phase I - Surface and Miscellaneous Materials (including UST[s]) Investigation, Sampling and Analysis
Phase II - Surface Remedial Activities and Disposal of Wastes
Phase III - Subsurface Investigation, Sampling and Analyses
Phase IV - Subsurface Remedial Activities and Disposal of Wastes
Phase V - Confirmation Sampling and Analysis

Mobilization

A fully outfitted office trailer and associated sanitation facilities will be mobilized and set up on Blake Construction property outside the gate entrance. The trailer will serve multiple purposes including service as the command center, crew facility and supply storage. An additional trailer may be mobilized as required, for extra storage of necessary supplies.

Phase I - Surface and Miscellaneous Materials (Including Ust[s]) Investigation, Sampling and Analyses

The primary objective of Phase I is to collect enough data to properly remove and dispose of polychlorinated biphenol-contaminated (PCB) articles, containers, transformers, and other miscellaneous wastes. Phase I will be separated into four (4) major sampling schemes, each addressing general categories of containers.

1. Underground storage tank(s) and non-mobile truck tanker
2. Transformers and miscellaneous electrical equipment
3. Drummed waste (solids and fluids)
4. Sea containers

Subsequent to this sampling, investigative research and analysis will be performed within two (2) categories.

A. On-site field screening of samples
B. Laboratory analysis of appropriate samples for appropriate parameters

The following is a discussion of each sampling scheme and applicable investigative procedures.

1. Underground Storage Tanks and Truck Tanker

   By representative methods as established by EPA SW-846, fluid samples will be collected from the known underground storage tank (UST) and the above-ground tank. The samples will be collected to indicate all phases of liquid separation. During this sampling,

information such as tank depth and shape, waste volume and sludge volume will be documented to assist with future removal activities.

Until confirmed otherwise by laboratory analyses, all waste will be considered PCB contaminated for health and safety purposes to insure proper decontamination of sampling equipment and field personnel.

2. Transformers and Electrical Equipment

Located within the various sea containers and main office building are a number of transformers and associated electrical equipment.

Information on name plates of transformers will be documented, and samples of oil will be collected from bottom valves. Any transformer that has been emptied will be considered to have last contained PCBs above 500 parts per million (ppm). The welder cores located in one of the sea containers will also be considered to be contaminated with PCB concentrations of greater than 500 ppm to insure the greatest degree of safety during handling and disposal activities.

Simultaneously with transformer sampling, a separate field crew will be inventorying the other electrical equipment manufacturing information to help ascertain absence or presence of PCB contamination.

3. Drummed Waste

Representative samples from each drum located throughout the property will be collected and archived for subsequent field analysis. Appropriate identification codes will be placed on each container for ease of tracking throughout the project.

Due to the condition of some drums, re-packing into salvage drums may be necessary. service will be performed on an as-needed basis to insure the integrity of drum storage until disposal is arranged. Upon completion of sampling activities, all drums will be placed into available sea containers or situated in a secure area on the property.

4. Sea Containers

Sea containers are being addressed under sampling activities due to past leakage from PCB-contaminated articles which were stored within them. Certain containers exhibit odors that are commonly associated with PCBs. Additionally, many of these same containers exhibit oily stains, also probably associated with leakage within the trailers.

The majority of sea containers are fabricated with wooden floors and metal walls. Chip samples will be collected from floor surfaces and wipe samples from metal surfaces.

A. Field Screening

To promote cost-effectiveness, a variety of field tests will be performed on all samples with the exception of solid wastes.

The parameters are basic, but will give an indication of probable contaminants and possible compositing of certain samples for laboratory analysis and potential subsequent disposal scenarios.

This activity will be performed under a controlled environment and consists of the following parameters.

Flash Point	PCBs
Halogens	pH
Cyanide	Water Solubility
Water Reactivity	

Data generated by field screening will be analyzed under close scrutiny, and can be used to potentially reduce the number of samples that require laboratory analyses.

B. Laboratory Analysis

Observations from field personnel, field screening results and disposal facility requirement information will be consolidated to determine analytical parameters for each sample. The parameters that are selected may vary from sample to sample, but PCBs will be analyzed on all samples due to the history of site activities.

The following issues will also be taken into consideration to insure proper handling and cost-effectiveness.

a. Process generating waste, i.e., transformer
b. RCRA or TSCA waste
c. Possibility of PCB cleaning solvents

The primary objectives for all analyses is to provide future transportation and disposal according to applicable local, state, and federal environmental regulations, in the most cost-effective manner.

Phase II - Surface Remedial Activities and Disposal of Wastes

Phase II will be initiated upon completion of laboratory analysis and acquisition of disposal approvals. A combination of remedial activities to address USTs and sea containers is also included under Phase II. The following is a listing of items/activities to be addressed.

1. UST removal(s) and disposal
2. Drum removal and disposal
3. Transformer removal and disposal
4. Sea container dismantling and disposal
5. Welder Core removal and disposal

There are certain limitations for explanation of each activity, since analytical results determine specific handling methods of generated wastes. Assumptions are made under each of the following headings to facilitate submittal of this document.

Actual removal and disposal procedures may be later modified as analytical information becomes available. All transformers, drums, containerized cores, and other articles will be labelled and packaged in accordance with titles 40 and 49 of the Code of Federal Regulations.

1. UST Removal

The subcontractors have established standard operating procedures for removal of USTs and the handling of generated waste streams. Contents of tanks may contain elevated concentrations of PCBs and may require compliance with regulations of 40 CFR 761.79. Otherwise, they will be handled as applicable for the waste materials as they are verified.

Corporate procedures will be modified to account for this situation and will focus mainly on levels of cleanliness.

2. Drum Removal

Drum removal will be accomplished solely by DLA. At the time of drum removal, all DOT shipping names and designated disposal facilities will have been determined. Transportation vehicles will then be dispatched and will be loaded by site personnel under the supervision of field chemists.

A major objective for drum removal is to determine whether an opportunity is available for shipment as a tanker load. This will consist of pumping liquid drums

and handling the empties as a separate waste stream, as this could improve job efficiency and cost-effectiveness.

3. Transformer Removal

Transformer removal will be accomplished solely by DLA. There are three (3) levels of contamination that determine handling methods of empty and full transformers.

a. < 50 ppm
b. 50 - 500 ppm
c. > 500 ppm

All oil from each transformer will be drained prior to shipment and segregated according to PCB concentration. Transformers will then be shipped via flatbed trailer directly to the disposal facility.

4. Sea Container Dismantling and Disposal

It has been assumed that each wooden floor of the previously-mentioned five (5) trailers is contaminated with PCBs above 50 ppm. This wood will be removed and deposited into a roll-off container for storage until disposal has been arranged.

Metal surfaces of each trailer will be cleaned with an appropriate solvent regardless of PCB contamination in preparation of salvage.

5. Welder Core Removal and Disposal

Welder core removal and disposal will be accomplished solely by DLA. It is assumed that welder cores are contaminated with PCBs above 500 ppm. These will be loaded and shipped directly to the recycling or treatment, storage, and disposal (TSD) facility designated by the contractor.

Phase III - Subsurface Investigation, Sampling And Analyses

The presence or absence of PCBs in surface pavement and the soil, as well as the concentrations, if present, will be determined based upon a shallow soil boring and sampling program for the site. This assessment will follow the removal of surface materials as described in Phase II. REWAI's approach to this task will be as follows:

- Soil borings will be advanced to a total depth of approximately three feet with a four-inch I.D. hollow-stem auger drill rig.

- All soil boring work will be conducted according with the Site HASP and will include the wearing of boots, tyvek coveralls, hardhats, and rubber gloves.

- Soil borings will be described and logged by a REWAI geologist. Soil characteristics described will include soil color and mottling, texture, odors, and signs of staining or discoloration.

- The locations of the proposed soil borings will be based upon staggered 15-foot grid intervals within the rear of the Rogers Electric site where the preponderance of contamination is thought to exist. Because contamination of the front of the site is not suspected, subsurface sampling will not be performed there. Subsequent to site clean-up and removal of all contaminated materials, confirmation sampling will be performed which will include the entire Rogers Electric site.

- The proposed sampling locations are shown on Figure 2. They may be field adjusted based on site conditions, and any such deviations from this plan will be noted on the figure.

- Continuous samples will be collected with a two-inch diameter, steel, split-spoon-type soil sampling device.

- Clean split-spoon samplers will be used for collection of each sample. At a minimum, split spoons and auger flights will be decontaminated between each boring location with a brush and alconox solution followed by high pressure steam cleaning. Other decontamination procedures will be used if required by the EPA site coordinator.

- Three samples will be collected at each boring location. Composite samples will be collected from the 0- to 0.5-foot asphalt layer by collecting initial auger cuttings from the overlying macadam. Soil samples from

the 0.5- to 1.5-foot and 1.5- to 3.0-foot depths will be collected at each boring location.

- The soil from each depth increment will be placed into a 4 ounce [125 milliliter (ml)] glass volatile organic analyzer (VOA) jar with teflon-lined lid. Samples will be labeled and cooled for transport and submission to the laboratory. Proper chain-of-custody forms will be completed and will accompany the samples throughout processing and analyses.

- All samples will be submitted to Wright Lab Services, Inc. (WLSI) for the analysis of total PCBs by EPA approved test procedures in accordance with Certified Laboratory Procedure (CLP) methods. Analysis by SW-846 Method 8080 requires extraction of each sample within seven days of collection; therefore, samples will be submitted to the laboratory prior to the end of each week's activities.

- Each boring will be backfilled to the surface with auger cuttings immediately following sample collection.

- Sampling locations will be identified in the field and located on a site map.

Phase IV - Subsurface Remedial Activities and Disposal of Wastes

Where site specific conditions warrant examining in-situ treatment technologies, an analysis will be made to determine the feasibility, cost-effectiveness, and efficiency of those treatment options. Upon approval by all concerned regulatory

personnel, those areas may be treated and monitored as necessary.

The extent of any necessary excavation, removal, and off-site disposal of soils will be determined by the results of the site characterization study. For the purpose of presenting a preliminary work plan, it is assumed that the first phase of excavation will take place in the same area as previous soil removal activities performed in the spring of 1991. Analytical results from that past work indicates shallow PCB soil contamination above regulatory limits and should be addressed.

The results of the Phase III effort will determine the exact extent of additional excavation and disposal necessary at the site. Disposal of PCB-contaminated soils and asphalt found on-site will be conducted in accordance with the requirements of 40 C.F.R. Part 761, the National Contingency Plan, and the EPA's Guidance on Remedial Actions for Superfund Sites with PCB Contamination. The storage of all PCB-contaminated soils, asphalt, transformers, welder cores, and other PCB-containing materials pending disposal will be in accordance with the provisions of 40 C.F.R. Part 761.

Phase V - Confirmation Sampling and Analyses

Once the above-described work has been completed, it will be necessary to perform sampling and analyses to confirm the adequacy of the remedial effort. This phase of work will be performed by REWAI in adherence to the criteria and methods outlined in EPA's Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup (EPA-560/5-86-017, May 1986), 40 CFR

Part 761, Polychlorinated Biphenyls Spill Cleanup Policy; Final Rule, and other applicable sampling protocols.

The methods for sample point selection as set forth in the grid sampling document consist of the generation of a hexagonal grid sample design that will ensure a high probability of PCB detection should it still exist.

All sampling, sample transport, and laboratory analyses will be performed in accordance with QA/QC procedures as described herein and in the above-mentioned guidance document.

4.0 WRIGHT LAB SERVICES, INC.
QUALITY ASSURANCE/QUALITY CONTROL PLAN
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

4.0 WRIGHT LAB SERVICES, INC.
QUALITY ASSURANCE/QUALITY CONTROL PLAN
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

I. QUALITY ASSURANCE OBJECTIVES

A. To maintain a continuing assessment of the accuracy and precision of data generated for this project.

B. To ensure the scientific reliability of the laboratory data.

C. To provide a permanent record of analytical performance as a basis for validating data.

D. To provide recordkeeping to help ensure sample integrity.

E. To ensure that the analytical work produced for this project will withstand legal scrutiny in regulatory actions.

II. QUALITY ASSURANCE SYSTEM

A. <u>Sample Collection.</u> In order to produce meaningful analytical data, a laboratory must have samples which are representative of the system from which they were taken. If the representativeness and integrity of the samples received in the laboratory cannot be verified due to inadequate sampling procedures, the usefulness

of the analytical data produced for these samples is limited.

For this reason, written sampling procedures are used when personnel from our laboratory are responsible for sample collection. These procedures are included in our Standard Operating Procedures Manual (SOP) for sample collection, handling, and identification. Using this manual, our sampling personnel ensure that collected samples are representative of the original systems, fully labelled and identified, and properly preserved and transported to the laboratory.

B. Glassware Cleaning.

1. Sample Bottles - WLSI purchases precleaned bottles from reputable suppliers for all drinking water analyses. Sterilized bottles or Whirlpak bags are used for all microbiological samples. Pre-cleaned bottles are also used for all samples that are to be analyzed by GC, GC/MS, TOC, and TOX. Amber glass bottles of various sizes with teflon lined lids are available for Wet Chemistry and metal analyses. High density polyethylene bottles are also available for metal analyses. Food-grade disposable low-density polyethylene bottles are used for most sewage samples. All bottles are disposed of after a single sampling.

2. Glassware for Organic Analyses - Clean glassware is critical for WLSI's organic analyses especially since the majority of our organic work is done in the parts per billion range. Failure to properly clean glassware will lead to a myriad of problems in organic analyses. Particular glassware of interest include soxhlet extractors, kuderna-danishes, concentrator tubes, or other glassware used in organic preparation analyses. These pieces of glassware are particularly important because of the concentrations that occur at the end of most organic extractions. In the process of concentrating a sample, contaminating substances encountered from the glassware are also being concentrated. The following steps are followed for the cleaning of organic glassware:

   a. Glassware which has come into contact with high levels of organic components (i.e. high level standards or particularly dirty samples) are flushed with the extraction solvent prior to being sent for further washing. This flush will take the majority of the organics off of the glassware so that these organics do not contaminate other glassware at later stages of the washing process.

   b. The glassware is placed in hot water containing an Alconox cleaner and allowed to soak at a temperature of 50 degrees Celsius or higher. This allows most particulate matter to float

off of the glassware. Approximately a 5 minute soak is sufficient.

c. The glassware is rinsed with hot tap water to flush away the floating particles. If visible films or contamination of the glassware still exists, steps d and e are used. Otherwise, the cleaning process is continued at step f.

d. Glassware that appears to contain either hard water deposits or other trace residues is cleaned further by soaking in a solution of "Contrad 70" alkaline cleaner. This removes greases, distillation residues, insoluble organic residues, hard water residues, etc. This step is performed on an as-needed basis when a noticeable problem is seen with the glassware.

e. If step d is performed, the glassware is again rinsed with hot tap water to rinse away particulate materials loosened by the Contrad 70.

f. All glassware is next distilled water rinsed to remove metallic deposits from the tap water that has been used.

g. All glassware is placed in an oven at 80 - 100 degrees Celsius until dry.

h. Immediately prior to use, all organic glassware is flushed with the same solvent that will be used for the analysis, to remove any materials that may be present after this cleaning procedure.

C. Preservation Chart/Sample Volume Requirements. WLSI uses a chart which designates the container, sample size, preservative, and maximum holding time for each parameter that is analyzed. See Table 1.

D. Chain-of Custody Procedures. All samples must be accompanied by a chain-of-custody form. information to the laboratory regarding sample collection and analyses. Strict chain-of-custody guidelines are followed by the laboratory in an effort to ensure the integrity of our samples. Samples being tested for litigation or regulatory purposes may require special documentation on the chain-of-custody forms. Specific information can be found in the SOP governing chain-of-custody documentation.

E. Sample Receipt. Upon arrival in the laboratory, samples are received by a sample custodian who ensures that all samples are accompanied by a proper chain-of-custody. The chain-of-custody will be signed by the person delivering the samples to relinquish the samples to the sample custodian. The sample custodian will then sign the form to receive the samples into the custody of the laboratory. The date and time are

recorded with both signatures. See the SOP for a more detailed look at the sample receipt process.

F. Acceptance/Rejection Criteria. When a sample arrives in the laboratory, a decision is made to accept or reject the sample. WLSI reserves the right to reject a sample upon receipt in the laboratory if any of the following conditions occur:

1. The sample is not properly identified on the sample label and/or the chain-of-custody form.

2. The sample has exceeded the holding time for the requested analysis.

3. The incorrect preservative was used during sample collection.

4. Incorrect sampling protocols were used during sampling (i.e., a sample not being filtered in the field for dissolved metals).

5. Improper sample container was used.

6. Insufficient sample is present to perform the requested analysis.

7. Improper storage or transport of sample has occurred prior to receipt.

8. Excessive amounts of sample have been collected or other conditions exist which would make disposal difficult.

G. Logging-In Procedures. To ensure sample accountability, all samples receive a unique sample identification number upon receipt in the laboratory. This identification number is recorded on the chain-of-custody for the sample and is placed on the sample bottle and in the laboratory computer system. This number is used to track the sample throughout the laboratory and will appear on the final sample report. Detailed information on sample log-in procedures is contained in the SOP for Sample Receipt.

H. Sample Identification and Control. Samples are labelled upon receipt with a unique sample identification number. This number along with the information from the chain-of-custody form is entered into the Laboratory Information Management System (LIMS). The computer contains all information necessary to locate and track the sample. It also contains the information regarding specific analyses and turnaround commitments. Using the computer system, laboratory personnel can access sample information by sample number, client name, project #, requested analyses, C-O-C #, etc. Sample identification and control is further detailed in the SOP for Sample Receipt.

I. Sample Storage. Because our samples have different storage requirements, samples are maintained in various locations to prevent sample deterioration. Samples are assigned to refrigerators, freezers, or room temperature cabinets to meet the storage requirements for particular analyses. After results are reported for a sample, samples are held for a two week period unless holding times warrant earlier disposal. At the end of the two-week holding period, samples will either be discarded by the laboratory or returned to the client. WLSI will not be responsible for disposal of materials known or suspected to contain dioxins of dibenzofurans. Special storage requirements for legal or other reasons will be met upon request.

J. Sample Disposal. WLSI's policy regarding sample disposal is defined by sample matrix.

Aqueous Samples: Under normal circumstances, aqueous samples are disposed of by the laboratory free of charge after completion of the requested analyses. WLSI, however, reserves the right to return aqueous samples if they are found to contain such high levels of contaminants that they make disposal difficult. When this occurs, WLSI will notify the client in advance of the return.

Nonaqueous and Solid Samples: WLSI always encourages the return of solid waste and/or nonaqueous samples. WLSI realizes that the generator of a waste material is ultimately responsible for that waste through disposal. Because of laws that clearly state this

responsibility of a waste generator, WLSI encourages its clients to accept responsibility for their samples once the analytical work is complete. If prior arrangements have not been made for laboratory disposal of a nonaqueous waste, approximately two weeks after completion of the analyses, WLSI will either personally deliver the completed samples to the client or return the samples by mail. The costs of these returns will be paid by the laboratory under normal circumstances. WLSI, however, reserves the right to bill shipping costs of the samples for which special shipping arrangements must be made. During these times, WLSI will notify the client prior to shipping.

K. Instrument Records. Written records are kept for all of our laboratory instruments and equipment. These records include the name of the manufacturer, purchase dates, service contracts, serial numbers and other pertinent information relating to specific instrumentation. These records are stored in file cabinets in the office of Christy Pasquariello, Business Manager. Instrument records are also stored in our information management system for easy access.

L. Standard Methodologies. WLSI relies upon five main references for the methodologies used in the laboratory as follows:

1. "Methods for Chemical Analysis of Water and Wastes," U.S. Environmental Protection Agency, 1979. Revised 1983.

2. "Microbiological Methods for Monitoring the Environment, Water and Wastes," 1978, EPA-600/8-78-017, U.S. Environmental Protection Agency.

3. "Standard Methods for the Examination of Water and Wastewater," American Public Health Association, 16th Edition.

4. SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," Third Edition, September 1986.

5. "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater," U.S. Environmental Protection Agency.

Standard Operating Procedure Manuals are available for each of the laboratory areas. These manuals are comprised of clear, complete written instructions for completing each standard test performed by the laboratory. Also included are references to the source of the method (see above sources), safety, quality control, and standard materials used in the analysis. See Table 2 for a list of the standard methods used in the laboratory.

M. Reagents/Reference Standards.

1. Reagents. Reagent quality is of extreme importance to laboratory results. The composition of specific reagents and solutions used are defined by the method for which they are prepared. Each laboratory area has defined standard operating procedures which govern the purity of reagents being used. A record of all chemicals received into the laboratory is maintained by Pamela Moore. When reagent is received in the laboratory, a record is made of the chemical name, manufacturer, lot number, date received, supplier, quality or reagent grade, expiration date, and storage location. The initials of the analyst making the entry is recorded also. The storage of the reagents is governed by the manufacturers recommendations and by the analytical procedures for which the reagents are used. Special storage requirements for individual reagents are listed in the chemical reagent logbook. See Figure 2.

2. Reference Standards. A standard reference material is a substance which by terms of identity, purity, and potency provides a reference value for a particular analysis. The National Institute of Standards and Technology provides numerous Standard Reference Materials (SRMs). Unfortunately, the cost of NBS standards prevents their exclusive use within the laboratory. In most cases chemically pure substances are purchased from supply houses for use as calibration standards. Standards which have been checked against National Bureau of

Standards SRMs are purchased from the supply houses when available.

Reference standards are used in all analyses requiring comparison to a chemical substance. The reference standards used are the ones specified by particular methods, by legal regulations, or other specification. Records are maintained for each reference standard used including the identity, purity, potency, date received, lot number, supplier, storage and handling procedures, and any testing done to assure the quality of the material. Reference standards not meeting quality criteria are not used.

N. Laboratory Analyses.

1. Test Scheduling. Test scheduling is accomplished through the laboratory information management system and is coordinated by the laboratory section leaders. The section leader from each of the laboratory departments prints a "Scheduling Analysis Report" (See Figure 3)) at the beginning of each day. This report lists the outstanding analyses from each of the departments. Each department is designated with a unique number which is used in the scheduling and recording of laboratory analyses, the assigned numbers are as follows:

01 - Gas Chromatography - Purge and Trap
1A - Gas Chromatography - Direct Injection
02 - Gas Chromatography/Mass Spectroscopy
2A - Gas Chromatography-Industrial Hygiene
03 - Metals
04 - Water Quality
05 - Microbiology
06 - Subcontracted Analyses
07 - TOX/TOC
8A - Asbestos in Air
8B - Bulk Asbestos
PD - Prep Department
20 - Field Analyses

2. An additional report generated by WLSI's LIMS is the "Unfinished Samples by Department report." (See Figure 4). This report generates a list of the unfinished samples in a particular department or the entire laboratory in order of lab sample number. This report is particularly useful to the section leaders because it generates an overall list of unfinished analyses within a department in the order in which the samples arrived in the laboratory. Using these LIMS reports, the section leaders assign tests to the laboratory analysts. The analysts enter the computer system and "schedule" the analyses. This is done by selecting Number 3 from the main laboratory menu on the computer system. See Figure 5. This area is entitled "Test Scheduling". The analysts must enter an access code to enter this area. Each analyst has a unique access code which permits them

to enter different areas of the laboratory computer system. Once the access code is accepted the analyst enters the test department, test ID code, date of scheduling, their initials, and the instrument number. The computer then marks the samples for which this is done as "scheduled." The information entered by the analyst is recorded in the system for use by other laboratory personnel. Anyone using the computer system to inquire on the scheduled samples will see this information.

3. Analyses. Once a test or group of tests is scheduled, the analyst performs the analyses according to the appropriate method. The method of choice will depend upon the request of the client. Standard methodologies used by WLSI are listed in Table 2. Often sample state and detection limits desired will govern the method used for a particular analysis. The detection limits for each analysis are calculated annually and are maintained in the laboratory areas. The detection limits calculated are the optimum limits and are rarely used as quantitation limits.

4. Record of Analyses. While performing a test, analysts record all necessary information in bound laboratory notebooks. The notebooks are test specific and contain all necessary information for the testing being done. A record is kept of the date the analysis was performed, the initials of the performing analyst, the laboratory sample numbers, calculations involved, and comments made

during the testing. This data is then entered into the LIMS by the analyst, and the notebook is given to the section leader for review. The leader responsible for the particular lab section in which the analysis was done reviews the raw information in the notebook and the data entry into the computer system. Once approval has been given by the section leader, the information is designated "batch approved" in the LIMS. Once all the analyses for a particular sample have been given "batch approval," the report is given to the Laboratory Manager for final review. In the absence of the Laboratory Manager, the Assistant Laboratory Manager will perform the final review of the sample.

5. The actual entry of the data into the computer system is done from Number 7 of the main laboratory menu. This section is entitled "Results Entry." Results are entered by the performing analyst. The date completed, analyst initials, instrument number, and quality control information are all recorded during results entry. The results are entered as "batches" where the entire group of sample numbers completed by the same analyst on the same date are entered together. This is very useful since all the quality control information (e.g., check samples, duplicates, spikes, and surrogate standards) done with that particular group of samples can be entered once and still be associated with each of the individual samples.

Each "batch" is assigned a unique number which is stored in the LIMS for sample tracking purposes.

O. Verification of Data (Quality Control).

1. WLSI uses the following internal and external quality control procedures to verify that the data produced by the laboratory has the required degree of accuracy and precision. The following protocols are followed for all samples unless a particular method or client requires more stringent QC procedures than are listed. Each SOP defines any QC procedure which differs from that described in this manual. Special client requests for QC are met as needed. WLSI reserves the right to review special client requests and make fee adjustments as needed for data packages, Tier II deliverables, etc.

   a. Duplicate Determinations. A duplicate analysis on one out of ten samples is done for every parameter or test determined. The LIMS informs the analysts as to which samples are to be duplicated. The LIMS assigns a random number to each test (0 through 9) and then the computer control file picks one of these numbers for duplicate analysis. The frequency of duplicate analyses is determined by the control file and can be set at any value that management desires, however WLSI has chosen the frequency of 10%. The LIMS makes control charts. Each test has a separate control chart

showing the percent recovery versus time. In addition, the LIMS calculates the relative percent differences (RPD) for each test using the following equation:

$$RPD = \frac{S - D}{(S+D)/2} \times 100\%$$

Where: S = sample result
D = duplicate result

In addition, upper and lower control limits are determined by the LIMS on a continuing basis. The LIMS uses the RPD as means of acceptance or rejection of data.

Note: For organic prep work, one sample out of ten will be extracted twice, and submitted to all cleanup steps before analysis on the GC or GC/MS. For metals, one in ten undergo duplicate elemental analysis and one in twenty undergo a duplicate digestion or extraction.

b. Spiked Sample Determinations. One sample out of every twenty samples is spiked with a specified quantity of each analyte to be determined. The section leader is consulted as to the quantity of analyte to spike to a given sample. The % recoveries of all spikes are documented in the notebooks, and reported on control charts that are maintained by the LIMS. In addition, upper and lower control

limits are maintained by the LIMS. This % recovery is used to determine the acceptance or rejection of the data. Standard deviation calculations are made of the % recovery values.

c. Method blanks. A method blanks is analyzed with every set of samples analyzed. A method blanks consists of deionized water carried through an analytical method as a sample. This involves the addition of all reagents and the submission of the sample to all extractions, etc. applicable to the method.

d. Surrogate Standards. Every analysis performed in the GC and the GC/MS sections use surrogate standards. These surrogate standards are defined in the SOP of each test. Surrogate recoveries are recorded in laboratory notebooks and also entered into the LIMS. The LIMS reports the recoveries of the surrogates on control charts. The upper and lower control limits are defined by the SOP, and the LIMS uses these to accept or reject the data.

e. Check Samples. Every analysis run in the metals section of the laboratory has associated check samples. Similarly, most water quality analyses also have check samples included in each analytical run. A check sample is a stable material containing the analyte of interest, preferably in a matrix or substrate similar to that for which the analytical method

was designed. Check sample can either be supplied commercially by a private supplier, by the EPA, or can be prepared in-house using reference standards or materials from a different lot or bottle than the calibration standards. Data on the check samples are recorded in the laboratory notebooks and entered into the LIMS. The frequency with which check samples are run depends upon the particular analysis and/or method. The calculated recoveries are plotted on a control chart and compared to a previously established confidence limit for the analysis. This confidence limit is updated by the LIMS by the QA Officer on a monthly basis. The LIMS accepts or rejects the check sample based upon the calculated confidence limits. Rejection of a check sample will require the reanalysis of the batch of samples associated with that check sample.

f. Interlaboratory Testing. Interlaboratory testing is used by WLSI to monitor the performance of individual analysts. A sample is analyzed by more than one analyst and the results are compared. The data is maintained in the LIMS and is accessible by analyst, test id, istrument, or QC type. Over a period of time, bias by a particular analyst may become evident by analyzing the data in the LIMS. When bias is noted, the analyst is made aware of the problem and reason for the bias

determined. The analyst then performs routine analysis to verify that acceptable precision and accuracy are obtainable before they may continue performing sample analyses.

g. Double Blind Samples are submitted for many of the more common tests that are run by the analysts. These are either retests of previous samples and are entered into the LIMS under a different and ficticious client name. These double blind sample results are compared to the previous test results and evaluated. The results are reported to the section leader on a monthly basis. The value of analyzing blind samples is that the analysts are unaware that they are participating in a QC check and as a result they do not perform the samples in a special way that may bias the results.

h. Proficiency and Certification Samples. WLSI participates in all required proficiency testing provided by the state and the EPA. WLSI analyzes at least one complete set of EPA water supply certification samples per year, obtained directly from EPA. The concentration of the analytes are not known by WLSI, but must be reported within the limits defined as acceptable by the EPA, or the laboratory may lose its accreditation. In addition, WLSI analyzes one complete set of EPA proficiency

samples per year, obtained directly from EPA with a range of expected values provided. In addition, WLSI participates in the EPA bulk proficiency testing programs for asbestos, air-borne asbestos and radon, also, Water Pollution Supply testing for the New Jersey Department of Environmental Protection as well as other state mandated tests.

i. Test Specific Quality Control. The above state quality control procedures are performed for all samples in addition to the necessary calibration standard and reagent blanks performed with each and every batch of samples. The calibration standards used in a particular method are outlined in the SOP. Each method has a specific number and concentration range established for the calibration standards used. Reagent blanks are very similar to method blanks and either may be used in a given method. Reagent blanks contain all the reagents used in a particular method but do not necessarily undergo any extractions, manipulations, etc. from the method. Reagent blanks are used for the sole purpose of contamination checks of test reagents. Method blanks are run as a check of reagents and accompanying method procedures. Please refer to each SOP for specific QC details.

P. Deficiency Corrections. As stated above, WLSI uses control charts to monitor analytical performance. The LIMS constructs control charts and calculates the upper and lower control limits. Warning limits are marked at plus and minus two standard deviations, and rejection limits are marked at plus and minus three standard deviations. Normal statistical methods are used to interpret the charts. The measurement process is out of control when:

(i) one or more points are beyond three standard deviations;

(ii) two or more consecutive points are outside of two standard deviations;

(iii) a run of four points occurs outside one standard deviation;

(iv) a run of seven or more points (this may be either seven consecutive points above or below the mean or seven consecutive points increasing or decreasing) occurs.

When any of these instances occurs, the analysis stops and the reason for the out-of-control situation investigated. The response to the out of control situation will depend on the analysis and the SOP should be consulted. In addition the section leader is informed of the problem and he/she does not allow any further analyses until the problem has been corrected. Corrections may include reassay of check samples,

remaking of standards, remaking of check samples, cleaning of instrument or other SOP mandated operations.

Q. Report Generation.

1. Approval Sequence. WLSI has an established sequence of approvals that a lab report undergoes before being issued to a client. The individual analyses on the report are initially reviewed by the analyst while performing the testing. The analyst assures that all quality control information is correct before entering the results for the analysis into the computer system. The data generated by the analyst is reviewed by the section leader responsible for the particular analysis. The section leader reviews both the raw data in the laboratory notebook and the data as entered into the LIMS. (See Record of Analysis section of this document.) Once all the data has received approval by the section leaders, the report is marked as complete in the LIMS and is sent to the laboratory manager for approval. The laboratory manager reviews and approves the report information using Number 8 from the main menu of the laboratory computer system. (See Figure 5). This area is entitled "Sample Inquiry and Approval." Access to this area is controlled by access codes. Only the Laboratory Manager and Assistant Manager have the proper codes to admit entry to the sample approval options. The computer supplies the Laboratory Manager with all the analytical results for a

particular sample number. It also supplies the quality control information generated with the analyses. The quality control information listed is accompanied by the acceptance/rejection recommendations of the section leader and the computer system. Each quality control parameter has an acceptable range stored within the memory of the LIMS. The acceptable range is unique for each quality control parameter entered and is established according to the laboratory protocol outlined in the Data Verification section of this document. When an analyst enters a quality control result, the computer screen will display and acceptance result of "yes" or "no" based upon the established limits it has stored for that QC parameter. The Section Leader can override the "yes" or "no" designation for a particular quality control result if necessary. The "Y" or "N" will, however, flash on and off if it has been changed. This will inform the laboratory manager that a conscious decision was made to change the acceptance of the quality control result. The Laboratory Manager then discusses the result with the section leader, if necessary, and makes the final decision for the acceptance or rejection of the result. Once the Laboratory Manager accepts all of the analytical results as accurate, he approves the sample. Once a sample has been approved by the Laboratory Manager, it is printed by the Laboratory Receptionist or the Accounts Payable personnel. A hardcopy of the lab report is forwarded to the Laboratory Manager for a

signature. In the absence of the Laboratory Manager, the Assistant Laboratory Manager will perform the approval duties listed above.

2. Report Format and Contents. Figure 6 contains a sample report as it would be addressed to a client. All of the necessary information is included on the report. The report lists the laboratory sample number, the client name and address, the job name, job number, location identification, sample state, sample collector, purchase order number (if available), date sampled, date received, date completed, and a discard date. This information is included in the heading of the report. In the actual body of the report, the test/parameter being analyzed is listed along with the results, units, and limit of detection for the particular test. Also included may be "line item comments" where a comment is attached directly to a particular result, and "sample comments" where comments are attached at the end of a report. These comments pertain to the sample as a whole rather than a particular test from the sample. At the end of the report a quality control section is included. This section lists the quality assurance parameter, the result of the quality control, the units, and quality control type. The results of all spikes and duplicates performed on the sample are contained in this area. Also included in this area is percentage recovery of surrogate standards. The results of check samples and blanks

performed with the sample analyses are not included on the final report. At the very end of the report is the signature of the Laboratory Manager. For samples which include only asbestos in air testing, the laboratory report is signed by the Laboratory Asbestos Specialist. For samples which include only bulk asbestos testing, the laboratory report is signed by the Assistant Laboratory Manager.

3. Report Revisions. Revisions can only be done to a finalized report by the Laboratory Manager or Assistant Manager. Revisions to analytical results are made through section 7 of the main laboratory computer menu. The revisions are made to the results in the batch and the batch is "reapproved" by the person making the revisions. Additions, deletions and revisions of comments can all be performed by the Laboratory Manager and Assistant Manager in this area. If final approval has not been given to a sample, section leaders may also revise results and comments for a sample. Once a sample has had final approval, however, only the laboratory managers have the appropriate access codes to allow for the revisions.

4. Report Additions. Additions to a laboratory report will be made either by the Laboratory Manager, the Assistant Manager, or the Sample Custodian, Lori Brown. If additional tests are requested on a sample that has been started but not finished by the laboratory, the Sample Custodian enters area 1 of the main laboratory menu and adds the test to

the appropriate sample. If the sample in question has been given final approval and reported, a new sample number must be given to the sample and the sample must be reentered into the laboratory system. All the information for the sample will be the same as originally entered. The new laboratory sample number will be the original four-digit chain-of-custody number followed by the letter "A" then followed by the line number from the original chain-of-custody that the sample was located on, e.g. XXXXA-X. Because the sample is reentered as a separate laboratory number, the additional tests will appear on a separate report. A sample comment is included on the new report that states, "These analyses were performed on the sample as received under laboratory sample number XXXX-X. No resampling of the material occurred."

R. Recordkeeping.

1. Recordkeeping is extremely critical in an environmental laboratory to assure the validity of the data it produces. WLSI produces two type of records: computerized records, and hardcopy records. The computerized records are of course those generated by the entry of information into the laboratory information management system. The information entered into the laboratory computer system is saved daily on video cassette tapes. This is accomplished through a "system back-up" which is initiated by the Sample Custodian or Third Shift Captain at the completion of their

shifts. During the week, the daily "back-up" includes the information added to the computer system for the day in which the back-up is done. The "back-up" that is done on Fridays is a "full back-up" and is a recording of the entire laboratory system as it exists at the time of the recording. The video cassettes on which this information is recorded are kept in the laboratory computer room in order of the "back-up" date. The actual memory of the computer also contains a "sample history" area where sample information is stored after it has been given final approval. The information for a particular sample is kept in the active area of the system for a period of one month. After this time, the information is transferred to the "sample history" file where it is retained indefinitely. During the "full back-up" done on Fridays, the history file is recorded along with the active files so that a computer failure would not cause a loss of the records. Backup tapes are stored in a fire-proof safe.

2. Hardcopy records produced by the laboratory are a combination of forms, reports, and notebooks. Chain-of-custody and sample information forms along with sample reports are stored in the assistant laboratory manager's office. These are filed in filing cabinets by client name. Each WLSI client has an individual file in which the forms and reports for all samples originating from that client are kept. Within this file, the records are

separated by type (e.g., all chains-of-custody are filed together, all lab analyses reports are stored together, etc.) and are placed in numerical order of the laboratory sample numbers. At the end of the calendar year, these records are moved from this office to the file room in the basement of the laboratory. The records are kept indefinitely in this area. The filing and maintaining of hardcopy records is the responsibility of the File Clerk. The file clerk is responsible for moving the files from the File Office upstairs to the file storage room located in the basement of the building. The file clerk is also responsible for photocopying the laboratory analysis reports before they are sent to the clients.

3. Laboratory notebooks are kept in the laboratories until they are filled or no longer in use. Once a notebook is "retired" or no longer functioning it is also stored in the file room in the basement of the laboratory. This includes the notebooks assigned to individual analysts, those in which instrument maintenance, calibrations, etc. were recorded, reference material notebooks, sample preservative notebooks, and all other bound materials generated by the laboratory. Laboratory notebooks and all raw-data information are kept indefinitely by the laboratory. It is the responsibility of the Laboratory Manager to file the notebooks in the file room.

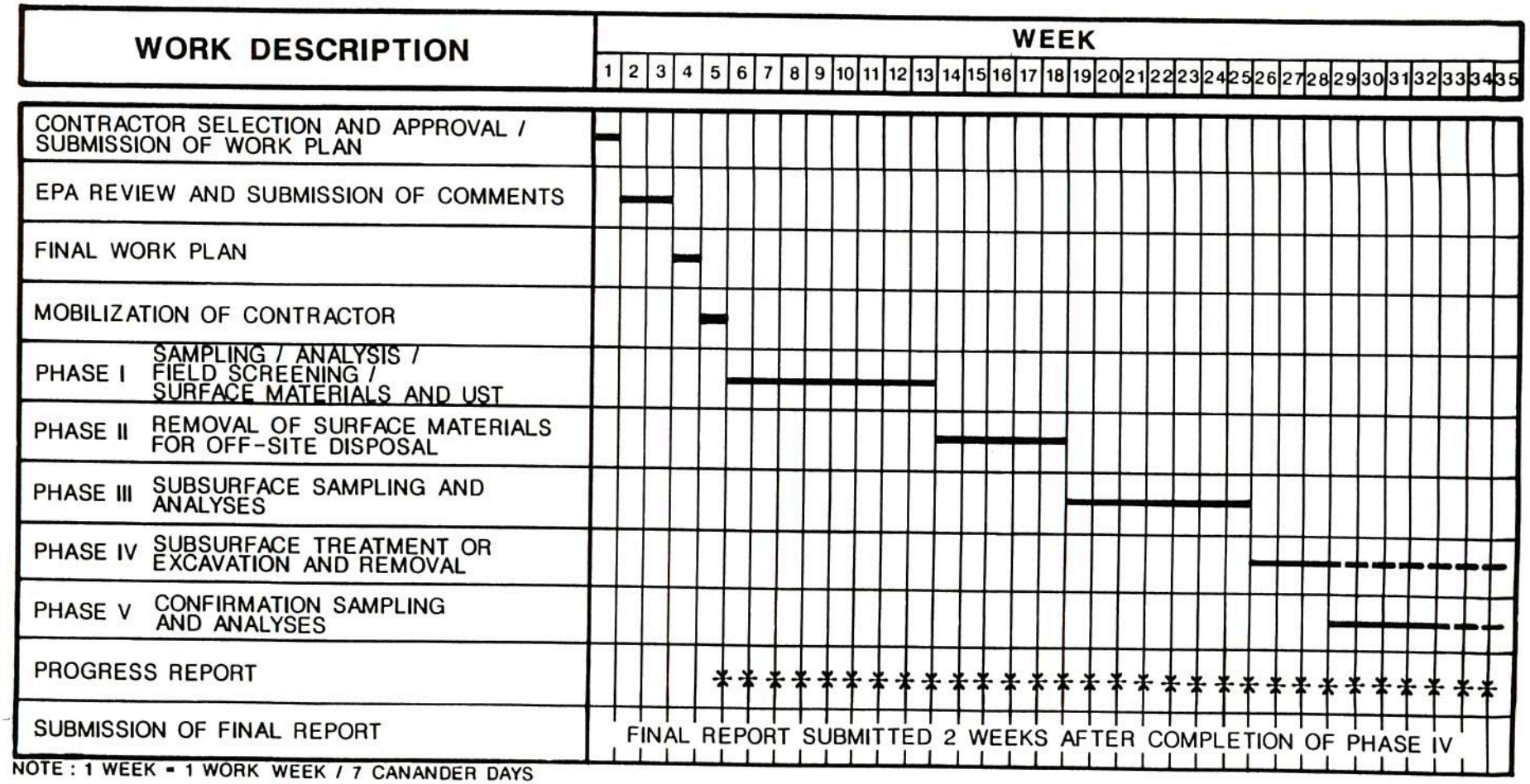
S. Instrument and Equipment Calibration. WLSI has written procedures for the calibration of all laboratory instruments and equipment. These procedures are can be found in the SOPs for methods using the equipment and frequently in the Instrument Log Books maintained for all equipment. All instruments and other equipment are calibrated on a regular basis in accordance with the written procedures contained in the SOPs or the Instruments logs. In general, the calibration curves consist of a minimum of one blank and three levels of standards. The frequency of the calibrations depends upon the type of instrument and its frequency of use. Acceptable limits of accuracy are also described in the SOP manual.

T. Instrument and Equipment Maintenance. Appendix F contains a general list of instrument performance checks that can be performed on the listed instruments to ensure proper functioning. Because of the length of the detailed maintenance procedures documentation for specific laboratory instruments is not found in this book. Instead, all maintenance and servicing done on instruments and equipment is recorded in hardbound notebooks. Separate books are kept for each instrument. Detailed in these books are the procedures for the maintenance, frequency required, dates performed, initials of personnel performing the maintenance, and comments made during the procedures. Also included are the dates of servicing by the instrument manufacturers, personnel performing the servicing, records of why it was done (i.e., routine check, instrument instability, etc.), and results of

the servicing relative to instrument performance. The individual notebooks are located in the laboratory with the instrument to which they pertain. All maintenance books for instruments located within a specific laboratory department are reviewed monthly by the section leaders of that department. Upon review the section leaders initial and date the books. Any problems seen during the review are recorded in the maintenance books by the section leaders along with the corrective actions taken to remedy the problems. The laboratory manager will review the notebooks when problems are found. Should no problems be found, the manager will review, initial, and date the books annually.

5.0 TIME-LINE SCHEDULE OFR PROPOSED ACTIVITIES
ROGERS ELECTRIC SITE
CHEVERLY, MARYLAND

SCHEDULE OF WORK FOR ROGERS ELECTRIC SITE
CHEVERLEY, MARYLAND



NOTE : 1 WEEK = 1 WORK WEEK / 7 CANANDER DAYS

ORIGINAL (Red)

APPENDIX A

CHEMICAL NAME
AROCLOR 1260

ORIGINAL
(Red)

FORMULA
NONE

SYNONYMS
CLOPHEN A60
CHLORODIPHENYL 60% CL
PHENCLOR DP6
PCB
POLYCHLORINATED BIPHENYL
POLYCHLORINATED BIPHENYL (AROCLOR 1260)
OHS01930

PERMISSIBLE EXPOSURE LIMIT
POLYCHLORINATED BIPHENYLS:
1.0 UG/M3 NIOSH RECOMMENDED 10 HOUR TWA
LOWEST FEASIBLE LIMIT NIOSH RECOMMENDED EXPOSURE CRITERIA
HUMAN LIMITED EVIDENCE FOR CARCINOGENICITY (IARC GROUP-2A)
ANIMAL SUFFICIENT EVIDENCE FOR CARCINOGENICITY (IARC GROUP-2A)
ANTICIPATED HUMAN CARCINOGEN (NTP
PROBABLE HUMAN CARCINOGEN (EPA - CATEGORY B)
REPRODUCTIVE EFFECTS DATA (RTECS); MUTAGENIC DATA (RTECS)
AQUATIC TOXICITY RATING 2-4/+ (TLM96 <1 - 100 PPM)
TLM96 - AGONUS CATAPHRACTUS >10 PPM, CRANGON CRANGON 3 - >10 PPM
CERCLA HAZARD RATING - TOXICITY 3 - IGNITABILITY 1 - REACTIVITY 0 -
PERSISTENCE 3

TOXICOLOGY: AROCLOR 1260 IS AN EYE, SKIN AND MUCOUS MEMBRANE IRRITANT. IT IS A HEPATOTOXIN. POISONING BY POLYCHLORINATED BIPHENYLS MAY AFFECT TISSUES AND ORGANS, ESPECIALLY THOSE RICH N LIPIDS, DUE TO ACCUMULATION AS A RESULT OF POOR METABOLISM. EPIDEMIOLOGICAL DATA PROVIDE EVIDENCE OF A RELATIONSHIP BETWEEN EXPOSURE TO POLYCHLORINATED BIPHENYLS AND THE DEVELOPMENT OF MALIGNANT MELANOMAS. CERTAIN PCB'S ARE CARCINOGENIC TO MICE AND RATS AFTER ORAL ADMINISTRATION, PRODUCING BENIGN AND MALIGNANT LIVER NEOPLASMS. ORAL ADMINISTRATION OF PCB'S INCREASED THE INCIDENCE OF LIVER NEOPLASMS IN RATS PREVIOUSLY EXPOSED TO N-NITROSODIETHYLAMINE.

POLYCHLORINATED BIPHENYLS ARE TREATED AS MATERIALS WITH POOR WARNING PROPERTIES, AS NO QUANTITATIVE DATA ARE AVAILABLE CONCERNING ITS ODOR AND IRRITATION THRESHOLDS.

THE THRESHOLD LIMIT VALUE OF 0.5 MG/M3 IS RECOMMENDED AT THIS TIME, HOWEVER, THIS COMPOUND IS UNDER REVIEW.

ORL-RAT LD50: 1315 MG/KG SKN-RBT LDLO: 2000 MG/KG

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION
NONE SPECIFIED

PHYSICAL DESCRIPTION
A PCB CONTAINING 60% CHLORINE

CHEMICAL AND PHYSICAL PROPERTIES
BOILING POINT AT 1 ATM, F: NA
SOLUBILITYIN WATER, G/100 G WATER AT 20C: 0.080 PPM AT 75 F
FLASH POINT, CLOSED CUP, F (OR OPEN CUP IF OC): FLAMMABLE
VAPOR PRESSURE @ 20 C, MMHG: NA
MELTING POINT, F: NA
SPECIFIC GRAVITY: NA

COMPATIBILITIES
THERMAL DECOMPOSITION PRODUCTS ARE HAZARDOUS AND/OR TOXIC
STRONG OXIDIZERS

RSONAL PROTECTIVE EQUIPMENT
NO NIOSH/OSHA DATA; RECOMMEND
EMPLOYERS SHALL PROVIDE AND ENSURE THAT EMPLOYEES USE APPROPRIATE PROTECTIVE CLOTHING AND EQUIPMENT NECESSARY TO PREVENT ANY POSSIBILITY OF SKIN CONTACT WIH THIS SUBSTANCE. FACE SHIELDS SHALL COMPLY WITH 29CFR1910.133(A)(2), (A)(4), (A)(5), AND (A)(6).

EMPLOYERS SHALL ENSURE THAT CLOTHING CONTAMINATED WITH THIS SUBSTANCE IS PLACED IN CLOSED CONTAINERS FOR STORAGE UNTIL IT CAN BE DISCARDED OR UNTIL THE EMPLOYER PROVIDES FOR THE REMOVAL OF THE CONTAMINANT FROM THE CLOTHING. IF THE CLOTHING IS TO BE LAUNDERED OR OTHERWISE CLEANED TO REMOVE THE CONTAMINANT, THE EMPLOYER SHALL INFORM THE PERSON PERFORMING THE CLEANING OF THE HAZARDOUS PROPERTIES OFTHE SUBSTANCE.

-- --- --

ACGIH "GUIDELINES FOR THE SELECTION OF CHEMICAL PROTECTIVE CLOTHING" INDICATED THE FOLLOWING PROTECTIVE RATINGS FOR MATERIALS COMMONLY USED F ? PROTECTIVE CLOTHING. THESE RATINGS ARE BASED PRIMARILY ON QUANTITATIVE TEST RESULTS AND QUALITATIVE RESISTANCE INFORMATION. (THE RECOMMENDATIONS APPLY TO THE PURE SUBSTANCE ONLY; BREAKTHROUGH-TIME MAY VARY FOR MIXTURES.) (A "+" DESIGNATES A BLEND OF MATERIALS, WHILE A "/" DESIGNATES A COATED OR LAMINATED MATERIAL.)

-- --- --

POLYCHLORINATED BIPHENYLS (UNDILUTED):

EXCELLENT/GOOD:
- SARANEX

GOOD/FAIR:
- POLYVINYL ALCOHOL
- VITON
- TEFLON

POOR/FAIR:
- BUTYL RUBBER
- POLYETHYLENE
- NEOPRENE
- POLYVINYL CHLORIDE

POOR:
- NATURAL RUBBER
- POLYETHYLENE

GLES
NO STANDARD REQUIREMENT, BUT ADVISE EYE PROTECTION TO
EMPLOYERS SHALL PROVIDE AND ENSURE THAT EMPLOYEES USE SPLASH-PROOF OGGLES WHICH COMPLY WITH 29CR1910.133(A)(2)-(A)(6) WHERE THERE IS ANY OSSIBILITY OF THIS LIQUID CONTACTING THE EYES.

HING CHEMICALS FROM THE SKIN
O STANDARD REQUIREMENT, BUT ADVISE WASHING
EMPLOYERS SHALL ENSURE THAT EMPLOYEES WHOSE SKIN BECOMES CONTAMINATED WITH THIS SUBSTANCE PROMPTLY WASH OR SHOWER WITH SOAP OR MILD DETERGENT ND WATER TO REMOVE ANY CONTAMINANT FROM THE SKIN.

EMPLOYERS SHALL ENSURE THAT EMPLOYEES WHO HANDLE THIS SUBSTANCE WASH HEIR HANDS THOROUGHLY WITH SOAP OR MILD DETERGENT AND WATER BEFORE

EATING, SMOKING, OR USING TOILET FACILITIES.

ORIGINAL (Red)

)UTINE CHANGING OF WORK CLOTHING
NOT REQUIRED

.OTHING REMOVAL FOLLOWING ACCIDENTAL CONTAMINATION
NO STANDARD REQUIREMENT, BUT ADVISE REMOVING
EMPLOYERS SHALL ENSURE THAT NON-IMPERVIOUS CLOTHING WHICH BECOMES CONTAMINATED WITH THIS SUBSTANCE BE REMOVED IMMEDIATELY AND NOT REWORN UNTIL THE SUBSTANCE IS REMOVED FROM THE CLOTHING.

SPECIFIC EMERGENCY PROVISIONS
NO NIOSH/OSHA DATA, ADVISE:

EMPLOYERS SHALL ENSURE THAT EMPLOYEES DO NOT EAT OR SMOKE IN AREAS WHERE THIS SUBSTANCE IS HANDLED, PROCESSED OR STORED.

EMPLOYERS SHALL ENSURE THAT AREAS IN WHICH EXPOSURE TO THIS SUBSTANCE MAY OCCUR BE IDENTIFIED BY SIGNS OR OTHER APPROPRIATE MEANS, AND THAT ACCESS TO THESE AREAS BE LIMITED TO AUTHORIZED PERSONS.

RES TRATOR SELECTION (UPPER LIMIT DEVICES PERMITTED)

SPEC ADVISE
- SELF-CONTAINED BREATHING APPARATUS
  WITH A FULL FACE-PIECE
- SUPPLIED-AIR RESPIRATOR
  WITH A FULL FACE-PIECE, HELMENT, OR HOOD

CAPE
- GAS MASK
  WITH A PESTICIDE CANISTER
  (CHIN-STYLE OR FRONT- OR BACK-MOUNTED CANISTER)
- SELF-CONTAINED BREATHING APPARATUS

REFIGHTING
SELF-CONTAINED BREATHING APPARATUS
WITH A FULL FACE-PIECE
OPERATED IN PRESSURE-DEMAND OR POSITIVE-PRESSURE MODE

OUTE OF ENTRY INTO BODY
.NHALATION
:NGESTION
SKIN OR EYE CONTACT

IPTOMS
SKIN IRRITATION
EYE IRRITATION
MUCOUS MEMBRANE IRRITATION
.EADACHE
NAUSEA
OMITING

ABDOMINAL CRAMPS
EDEMA
ANOREXIA
FATIGUE
JAUNDICE
CHLORACNE
EXTRA PIGMENTATION
EDEMA OF THE EYELIDS
CONJUNCTIVITIS
BLURRED VISION
DIARRHEA
ANALGESIA
CENTRAL NERVOUS SYSTEM DEPRESSION
PERIPHERAL NEUROPATHY
LIVER TUMORS
COMA
LUNG INJURY
STOMACH HEMORRHAGE
PANCREAS INJURY
KIDNEY INJURY
NEOPLASM

FIRST AID PROCEDURES FOLLOWING EXPOSURE
IF THIS CHEMICAL GETS INTO THE EYES, WASH THE EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPRXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

IF THIS CHEMICAL GETS ON THE SKIN, REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). FOLLOW WITH APPLICATION OF CASTOR OIL OR 10% ETHYL ALCOHOL. (ARENA, POISONING, 4TH ED.). GET MEDICAL ATTENTION IMMEDIATELY.

IF THIS CHEMICAL HAS BEEN INHALED, REMOVE FROM EXPOSURE AREA TO FRESH AIR IMEDIATELY. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.

POLYCHLORINATED BIPHENYL/POLYCHLORINATED NAPHTHALENE:
EMERGENCY TREATMENT - REMOVE FROM EXPOSURE.
FURTHER TREATMENT - TREAT LIVER DAMAGE.
(DREISBACH, HANDBOOK OF POISONING, 11TH ED.)

LIVER DAMAGE - DISCONTINUE ALL DRUGS AND CHEMICALS. MAINTAIN COMPLETE BED REST. AVOID ANESTHESIA OR SURGICAL PROCEDURES. AVOID DEHYDRATION OR OVERHYDRATION. IF VOMITING IS SEVERE AND ORAL FLUIDS ARE NOT RETAINED, REPLACE VOMITUS WITH AN EQUAL QUANTITY OF 5-10% DEXTROSE IN 0.3-0.5 N SALINE. ADMINISTER MAINTENANCE FLUIDS AND ELECTROLYTES AS NECESSARY, DEPENDING ON RENAL FUNCTION. RESUME ORAL FEEDINGS AS SOON AS THE PATIENT CAN TOLERATE THEM. CONTROL THE AMOUNT OF PROTEIN IN THE DIET IN ORDER TO CORRECT THE SERUM PROTEIN LEVEL. GIVE VITAMIN K, PHYTONADIONE, 2.5 MG DAILY. IF ANEMIA IS SEVERE, CONSIDER A BLOOD TRANSFUSION. PROCEDRE MUST BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.
(DREISBACH, HANDBOOK OF POISONING, 12TH ED.).

GANS

KIDNEYS
LIVER
SKIN
CENTRAL NERVOUS SYSTEM
HEART

ORIGINAL (Red)

'ATUS OF REGULATORY ENFORCEMENT
OSHA STANDARD 1910.1200 HAZARD COMMUNICATION
REQUIRES CHEMICAL MANUFACTURERS AND IMPORTERS TO ASSESS THE HAZARDS OF CHEMICALS WHICH THEY PRODUCE OR IMPORT, AND ALL EMPLOYERS TO PROVIDE INFORMATION TO THEIR EMPLOYEES CONCERNING HAZARDOUS CHEMICALS BY MEANS OF A HAZARDOUS COMMUNICATION PROGRAM, LABLS AND OTHER FORMS OF WARNING, MATERIAL SAFETY DATA SHEETS, AND INFORMATION AND TRAINING. REQUIRES DISTRIBUTORS TO TRANSMIT REQUIRED INFORMATION TO EMPLOYERS.

OSHA STANDARD 29CFR1910.94 VENTILATION

OSHA STANDARD 29CFR1910.134 RESPIRATORY PROTECTION

OSHA STANDARD 29CFR1910.20 ACCESS TO EMPLOYEE EXPOSURE AND MEDICAL RECORDS

OSHA STANDARD 29CFR1910.132 PERSONAL PROTECTIVE EQUIPMENT

OSHA STANDARD 29CFR1910.141 SANITATION

OSHA STANDARD 29CFR1910.151 MEDICAL SERVICES AND FIRST AI

OSHA STANDARD 29CFR1910.133 EYE AND FACE PROTECTION

40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT
SECTION 8(C) OF THE TOXIC SUBSTANCES CONTROL ACT (TSCA) REQUIRES MANUFACTURERS, PROCESSORS,. AND DISTRIBUTORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT ALLEGED TO HAVE BEEN CAUSED BY THE SUBSTANCE OR MIXTURE. EPA MAY INSPECT AND REQIRE REPORTING OF SUCH RECORDS.

STANCE ESTABLISHED AS CONFIRMED OR SUSPECTED CARCINOGEN (POTENTIAL CARCINOGEN) BY THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC)

SUBSTANCE LISTED AS "KNOWN HUMAN CARCINOGEN" OR "ANTICIPATED HUMAN CARCINOGEN" BY THE NATIONAL TOXICOLOGY PROGRAM (NTP) ANNUAL REPORT ON CARCINOGENS.

10CFR401.15 GENERAL PROVISIONS
SUBCHAPTER N - EFFLUENT GUIDELINES AND STANDARDS
THIS SUBSTANCE LISTED AS A TOXIC POLLUTANT DESIGNATED PURSUANT TO SECTION 307(A)(1) OF HE CLEAN WATER ACT

40CFR116 DESIGNATION OF HAZARDOUS SUBSTANCES
SUBSTANCE DESIGNATED AS A HAZARDOUS SUBSTANCE UNDER SECTION 311(B)(2)(A) OF THE CLEAN WATER ACT. INCLUDES ANY ISOMERS AND HYDRATES, AS WELL AS ANY SOLUTIONS AND MIXTURES CONTAINING THESE SUBSTANCES.

40CFR122 EPA ADMINISTERED PERMIT PROGRAMS: THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
APPENDIX D - NPDES PERMIT APPLICATION TESTING REQUIREMENTS
TABLE II - ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIOS IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GS/MS)

REGULATION IN DEVELOPMENT/PROGRESS COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA) SECTION 101

ORIGINAL (Red)

40CFR761 POLYCHLORINATED BIPHENYLS (PCBS) MANUFACTURING, PROCESSING, DISTRIBUTION IN COMMERCE, AND USE PROHIBITIONS.
ESTABLISHES PROHIBITIONS OF, AND REQUIREMENTS FOR, THE MANUFACTURE, PROCESSING, DISTRIBUTION IN COMMERCE, USE, DISPOSAL, STORAGE, AND MARKING OF PCBS AND PCB ITEMS.
54FR52716 12/21/89 (AMENDMENT)

21CFR109.15 USE OF POLYCHLORINATED BIPHENYLS (PCB'S) IN ESTABLISHMENTS MANUFACTURING FOOD-PACKAGING MATERIALS
42FR52819 09/30/77

21CFR109.30 TOLERANCES FOR POLYCHLORINATED BIPHENYL'S (PCB'S)
38FR22794 08/24/73 (STAY OF 109.30(A)(9))
42FR52819 09/30/77
44FR38340 06/29/79 (REVISION OF 109.30(A)(7))
44FR57389 10/05/79 (STAY OF 109.30(A)(7))
46FR8459 01/27/81
48FR10811 03/15/83

THE FOOD AND DRUG ADMINISTRATION IS CONFIRMING THE EFFECTIVE DATE FOR COMPLIANCE WITH THE FINA RULE CONCERNING A TOLERANCE FOR PCB'S IN PAPER FOOD-PACKAGING MATERIAL (21CFR109). THE AGENCY IS ALSO CORRECTING THE PREAMBLE TO THE RULE.
48FR45544 10/06/83

SUBSTANCE LISTED BY THE NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW ACT, P.L. 1983, CHAPTER 315, N.J.S.A. 34: A-1. EMPLOYERS COVERED: SIC CODES 20-39, 46-49, 51, 75, 76, 80, 82, AND 84.

SUBSTANCE LISTED UNDER THE STATE OF FLORIDA TOXIC SUBSTANCES IN THE WORKPLACE RIGHT TO KNOW LAW, CHAPTER 442 OF THE FLORIDA STATUTES.

SUBSTANCELISTED UNDER THE STATE OF PENNSYLVANIA WORKER AND COMMUNITY RIGHT TO KNOW ACT, P.L. 734, NO. 159.

SUBSTANCE LISTED UNDER THE STATE OF CALIFORNIA HAZARDOUS SUBSTANCES INFORMATION AND TRAINING ACT, CALIFORNIA LABOR CODE, DIVISION 5, CHAPTER 2.5

SUBSTANCE LISTED UNDER THE STATE OF ILLINOIS TOXIC SUBSTANCES DISCLOSURE TO EMPLOYEES ACT, TITLE 56, CHAPTER I, SUBCHAPTER B, SECTION 205.

POLYCHLORINATD BIPHENYLS ARE BEING TESTED FOR CLINICAL TOXICOLOGY/ EPIDEMIOLOGY AND REPRODUCTIVE/DEVELOPMENTAL TOXICITY BY THE NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS),

THIS SUBSTANCE LISTED IN CALIFORNIA AS A REPRODUCTIVE TOXIN UNDER PROPOSITION 65, THE SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986. REGULATION REQUIRES EMPLOYERS BEGINNING JANUARY 1, 1992, TO WARN WORKERS, CONSUMERS AND THE PUBLIC WHEN THEY ARE EXPOSED TO THIS CHEMICAL AT A LEVEL DEEMED BY THE STATE TO POSE A SIGNIFICANT RISK. WARNING METHODS MAY INCLUDE PRODUCT OR SHELF LABELS, SIGNS OR MEDIA ANNOUNCEMENT. BEGINNING SEPTEMBER 1, 1992, THIS CHEMICAL CANNOT BE DISCHARGED OR RELEASED INTO ANY KNOWN SOURCE OF DRINKING WATER.

UNDER THE CALIFORNIA AIR TOXICS HOT SPOTS INFORMATION AND ASSESSMENT

ACT OF 1987, OPERATORS OF FACILITIES WHICH RELEASE, OR HAVE THE POTENTIAL TO RELEASE, SPECIFIED QUANTITIES OF THIS SUBSTANCE MUST SUBMIT TO THE APPROPRIATE LOCAL AIR POLLUTION CONTROL DISTRICTS, OR AIR QUALITY MANAGEMENT DISTRICTS, COMPREHENSIVE EMISSIONS INVENTORY PLANS AND HEALTH RISK ASSESSMENTS ADOPTED BY THE CALIFORNIA AIR RESOURCES BOARD (ARB).
EFFECTIVE DATE: 1/1/88
AB 2588, CHAPTER 1252

ORIGINAL (Red)

THIS SUBSTANCE LISTED IN CALIFORNIA AS A CARCINOGEN UNDER PROPOSITION 65 THE SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986. REGULATION REQUIRES EMPLOYERS BEGINNING JANUARY 1, 1989, TO WARN WORKERS, CONSUMERS AND THE PUBLIC WHEN THEY ARE EXPOSED TO THIS CHEMICAL AT A LEVEL DEEMED BY THE STATE TO POSE A SIGNIFICANT RISK. WARNING METHODS MAY INCLUDE PRODUCT OR SHELF LABELS, SIGNS OR MEDIA ANNOUNEMENTS. BEGINNING SEPTEMBER 1, 1989, THIS CHEMICAL CANNOT BE DISCHARGED OR RELEASED INTO ANY KNOWN SOURCE OF DRINKING WATER.

CANADA: THIS SUBSTANCE SUBJECT TO REQUIREMENTS OF CANADA'S WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS). THE REGULATIONS REQUIRE SUPPLIERS OF HAZARDOUS MATERIALS TO PROVIDE ADEQUATE LABELS AND MATERIAL SAFETY DATA SHEETS (MSDS'S) AS CONDITIONS OF SALE AND IMPORTATION. EMPLOYERS MUST PROVIDE LABELS, MSDS'S AND WORKER EDUCATION PROGRAMS IN THE WORKPLACE.

CERCLA SECTION 104(I) PRIORITY LIST OF HAZARDOUS SUBSTANCES FOUND AT SUPERFUND SITES.
52FR12866 4/17/87
53FR41280 10/20/88
54FR43615 10/26/89
55FR42067 10/17/90

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA) - TABLE 4.2
DANGEROUS GOODS LIST: THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING AND OTHER REQUIREMENTS.
DESIGNATED AS A DANGEROUS GOOD FOR THE PURPOSE OF AIR TRANSPORTATION.

THIS SUBSTANCE TESTED FOR SYSTEMIC/ORGAN TOXICITY BY THE ENVIRNMENTAL PROTECION AGENCY (EPA)

40CFR370 SARA TITLE III SECTION 311 HAZARDOUS CHEMICAL REPORTING: COMMUNITY RIGHT-TO-KNOW
SUBPART B - REPORTING REQUIREMENTS

40CFR370 SARA TITLE III SECTION 312 HAZARDOUS CHEMICAL REPORTING: COMMUNITY RIGHT-TO-KNOW
SUBPART D - INVENTORY FORMS

40CFR117 DETERMINATION OF REPORTABLE QUANTITIES FOR HAZARDOUS SUBSTANCES
QUANTITIES, AS LISTED IN TABLE 302.4 40CFR302, THAT MAY BE HARMFUL AND WHICH THE DISCHARGE IS A VIOLATION OF THE CLEAN WATER ACT SECTION 311(B)(3) AND REQUIRES NOTICE AS SET FORTH IN SECTIONS 103(A) AND 103(B) OF CERCLA.

29CFR1910.1450 SUBJECT TO OSHA STANDARD REGULATING OCCUPATIONAL EXPOSURE TO HAZARDOUS CHEMICALS IN LABORATORIES.
EFFECTIVE DATE: 5/1/90
55FR3300 1/31/90

40CFR302 CERCLA SECTION 103 DESIGNATION, REPORTABLE QUANTITIES AND NOTIFICATION
REPORTABLE QUANTITY (RQ) : 1 LB. (0.454 KG)

ORIGINAL (Red)

EDICAL SURVEILLANCE REQUIRED
NO INFORMATION AVAILABLE FROM NIOSH/OSHA "OCCUPATIONAL HEALTH GUIDELINES FOR CHEMICAL HAZARDS"; ADVISE:
EKG RECOMMENDED IF EMPLOYEE TO WEAR FULL-FACE RESPIRATOR
GENERAL MEDICAL HISTORY
40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT
TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO EMPLOYEE HEALTH FOR 30 YEARS.
PHYSICIAN PRE-PLACEMENT AND ANNUAL EXAMS
MEDICAL WARNING FOR REFUSAL OF MEDICAL EXAMINATION
BLOOD CHEMISTRY
TOTAL BILIRUBIN
RENAL AND LIVER FUNCTIONS
FR1910.20 OSHA STANDARD
SUBPART C - GENERAL SAFETY AND HEALTH PROVISIONS
PROVIDES FOR EMPLOYEE, DESIGNATED REPRESENTATIVE, AND OSHA ACCESS TO EMPLOYER-MAINTAINED EXPOSURE AND MEDICAL RECORDS RELEVANT TO EMPLOYEES EXPOSED TO TOXIC SUBSTANCES AND HARMFUL PHYSICAL AGENTS.
53FR38140 9/29/88 (AMENDED)

RTIFICATIONS
NO FEDERAL AGENCY REQUIREMENT, BUT DUE TO HAZARDOUS NATURE OF SUBSTANCE, ADVISE FOLLOWING:

HEALTH STATUS CLASSIFICATION

OSHA RESPIRATOR CERTIFICATION 29CFR1910.134

ARTMENT OF TRANSPORTATION IF OPERATES HEAVY EQUIPMENT

EMPLOYEE HAZARDOUS MATERIALS EDUCATION RECEIPT

EMPLOYEE MEDICAL RECORDS RECEIPT

TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO EMPLOYEE HEALTH FOR 30 YEARS. CONTACT: CHARLES L. ELKINS, OFFICE OF TOXIC SUBSTANCES, EPA (202) 382-3813.

MEDICAL WARNING REQUIRED FOR MEDICAL EXAM REFUSAL SIGNED BY EMPLOYEE

ECIAL DIAGNOSTIC TESTS
BASELINE LIVER AND RENAL FUNCTIONS
BLOOD CHEMISTRY

ORIGINAL (Red)

LEAKS AND SPILL PROCEDURES
REPORTABLE QUANTITY (RQ): 1 LB. (0.454 KG)
A REPORTABLE QUANTITY OF ONE POUND APPLIES TO THIS SUBSTANCE ESTABLISHED BY SECTIONS 101(14) AND 102(B) OR ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT OF 1980 CERCLA). SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THAT SUBSTANCE IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER (800) 424-8820; IN THE WASHINGTON, D.C.METROPOLITAN AREA (202)426-2675.
40CFR302

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DEPARTMENT OF TRANSPORTATION HAZARD CLASS
49CFR172.101 HAZARDOUS ATERIALS TABLE

POLYCHLORINATED BIPHENYLS
ORM-E
UN 2315

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS
49CFR172.101 AND 49CFR172 SUBPART E:

NONE

****

INTERNATIONAL MARITIME ORGANIZATION HAZARD CLASS
49CFR172.102 OPTIONAL HAZARDOUS MATERIALS TABLE

CLASS 9-MICELLANEOUS DANGEROUS SUBSTANCES

INTERNATIONAL MARITIME ORGANIZATION LABELING SPECIFICATIONS FOR DOMESTIC AND EXPORT SHIPMENTS
49CFR172.102

****

FOLLOWING INFORMATION RECOMMENDED FOR THE EMERGENCY HANDLING OF HAZARDOUS MATERIALS

IF MATERIAL ON FIRE OR INVOLVED IN FIRE:
* USE SUITABLE AGENT FOR TYPE OF SURROUNDING FIRE TO EXTINGUISH FIRE (MATERIAL ITSELF DOES NOT BURN OR BURNS WITH DIFFICULTY)

IF MATERIAL IS NOT ON FIRE AND IS NOT INVOLVED IN FIRE:
* DO NOT ALLOW MATERIAL TO CONTAMINATE WATER SOURCES AND SEWERS
* CONTAIN FLOW WITH DIKES AS NECESARY

PERSONNEL PROTECTION:
* KEEP UPWIND
* WEAR BOOTS, PROTECTIVE GLOVES AND GAS TIGHT GOGGLES
* AVOID BREATHING DUST/VAPORS/FUMES FROM MATERIAL
* WASH CONTAMINATED SKIN WITH COPIOUS AMOUNTS OF WATER OR SOAP AND

WATER

ORIGINAL (Red)

LAND SPILL:
* DIG A HOLDING AREA SUCH AS A PIT, POND, OR LAGOON TO CONTAIN LIQUID OR SOLID MATERIAL
* DIKE FLOW OF SPILLED MATERIAL USING SOIL OR SANDBAGS OR FOAMED BARRIERS SUCH AS POLYURETHANE OR CONCRETE
* USE CEMENT POWDER OR FLY ASH TO ABSORB LIUID MASS

WATER SPILL:
* USE NATURAL DEEP WATER POCKETS, EXCAVATED LAGOONS, OR SAND BAG BARRIERS TO TRAP MATERIAL AT BOTTOM
* IF DISSOLVED, APPLY ACTIVATED CARBON AT 10 TIMES SPILLED AMOUNT IN THE REGION OF 10 PPM OR GREATER CONCENTRATION
* USE SUCTION HOSES TO REMOVE TRAPPED MATERIAL
* REMOVE IMMOBILIZED MASSES OF POLLUTION AND PRECIPITATES WITH MECHANICAL DREDGES OR LIFTS

THIS SUBSTANCE LISTED IN CALIFORNIA AS A CARCINOGEN UNDER PROPOSITION 65, THE SAFE DRINKING WATER ND TOXIC ENFORCEMENT ACT OF 1986. LISTED CHEMICALS CANNOT BE DISCHARGED OR RELEASED INTO WATER OR ONTO OR INTO ND WHERE THERE IS ANY POSSIBILITY OF PASSING INTO ANY SOURCE OF DRINKING WATER.

THIS SUBSTANCE LISTED IN CALIFORNIA AS A REPRODUCTIVE TOXIN UNDER PROPOSITION 65, THE SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986. LISTED CHEMICALS CANNOT BE DISCHARGED OR RELEASED INTO THE WATER OR ONTO OR INTO LAND WHERE THERE IS ANY POSSIBILITY OF PASSING INTO ANY SOURCE OF DRINKING WATER.

ASTE

****

OBSERVE ALL FEDERAL, STATE OR LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. CONTACT LOCAL AND/OR STATE ENVIRONMENTAL AUTHORITIES TO INSURE PROPER COMPLIANCE.

****

THIS SUBSTANCE DOES NOT MEET THE DEFINITION OF A HAZARDOUS WASTE AS DEFINED BY THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) (40CFR260)

40CFR761 SUBPART D SUBJECT TO STORAGE AND DISPOSAL REGULATIONS FOR POLYCHL BIPHENYLS (PCBS) AS REGULATED BY EPA UNDER THE TOXIC SUBSTANCES CONTROL ACT (TCSA) SECTION 6(E)(1).
54FR52716 12/21/89 (AMENDMENT)

S NUMBER
11096-82-5

GISTRY TOXIC CHEMICALS NUMBER
TQ1362000

LLETINS
EPA HAS ISSUED A FINAL RULE UNDER THE TOXIC SUBSTANCES CONTROL ACT (TSCA) THAT ESTABLISHES A "CRADLE-TO-GRAVE" TRACKING SYSTEM FOR THE TRANSPORT, STORAGE AND DISPOSAL OF PCBS EFFECTIVE FEBRUARY 5, 1990.

(SEE EHN ITEM 034). 54FR52716 12/21/89

SPECIAL INFORMATION
12% PENTA-, 35% HEXA-, 41% HEPTA-, 8% OCTA-, AND 1% NONACHLOROBIPHENYLS

APPENDIX B

FORMULA: mixture: $C_{12}H_{10-x}Cl_x$ [where x = 1 to 10]
M.W.: ca. 258 (42% Cl ; $C_{12}H_7Cl_2$);
ca. 326 (54% Cl ; $C_{12}H_5Cl_5$)

POLYCHLOROBIPHENYLS

METHOD: 5503
ISSUED: 2/15/84
REVISION #1: 8/15/87

OSHA: 1 mg/m³ (42% Cl); 0.5 mg/m³ (54% Cl)
NIOSH: 0.001 mg/m³ [1,2]
ACGIH: 1 mg/m³ (42% Cl); STEL 2 mg/m³
0.5 mg/m³ (54% Cl); STEL 1 mg/m³ (skin)

PROPERTIES:
42% Cl: BP 325 to 366 °C; MP -19 °C; d 1.38 g/mL @ 25 °C; VP 0.01 Pa (8 x 10^{-5} mm Hg; 1 mg/m³) @ 20 °C [3]
54% Cl: BP 365 to 390 °C; MP 10 °C; d 1.54 g/mL @ 25 °C; VP 0.0004 Pa (3 x 10^{-6} mm Hg; 0.05 mg/m³) @ 20 °C [3,4]

SYNONYMS: PCB; CAS #1336-36-3; 1,1'-biphenyl chloro (CAS #27323-18-8); chlorodiphenyl, 42% Cl (Aroclor 1242; CAS #53469-21-9), and 54% Cl (Aroclor 1254; CAS #11097-69-1)

SAMPLING

SAMPLER: FILTER + SOLID SORBENT (13-mm glass fiber + Florisil, 100 mg/50 mg)

FLOW RATE: 0.05 to 0.2 L/min or less

VOL-MIN: 1 L @ 0.5 mg/m³
-MAX: 50 L

SHIPMENT: transfer filters to glass vials after sampling

SAMPLE STABILITY: unknown for filters; 2 months for Florisil tubes [5]

BLANKS: 10% of samples

ACCURACY

RANGE STUDIED: not studied

BIAS: none identified

OVERALL PRECISION (s_r): not evaluated

MEASUREMENT

!
!TECHNIQUE: GAS CHROMATOGRAPHY, ECD (^{63}Ni)
!
!ANALYTE: polychlorobiphenyls
!
!DESORPTION: filter + front section, 5 mL hexane;
! back section, 2 mL hexane
!
!INJECTION VOLUME: 4 µL with 1-µL backflush
!
!TEMPERATURE-INJECTION: 250 - 300 °C
! -DETECTOR: 300 - 325 °C
! -COLUMN: 180 °C
!
!CARRIER GAS: N_2, 40 mL/min
!
!COLUMN: glass, 1.8 m x 2 mm ID, 1.5% OV-17/1.95%
! QF-1 on 80/100 mesh Chromosorb WHP
!
!CALIBRATION: standard PCB mixture in hexane
!
!RANGE: 0.4 to 4 µg per sample [6]
!
!ESTIMATED LOD: 0.03 µg per sample [6]
!
!PRECISION (s_r): 0.044 [5]
!

APPLICABILITY: The working range is 0.01 to 10 mg/m³ for a 40-L air sample [5]. With modifications, surface wipe samples may be analyzed [7,8].

INTERFERENCES: Chlorinated pesticides, such as DDT and DDE, may interfere with quantitation of PCB. Sulfur-containing compounds in petroleum products also interfere [9].

OTHER METHODS: This method revises Methods S120 [10], 5503 (dated 2/15/84), and P&CAM 244 [5]. Methods S121 [11] and P&CAM 253 [12] for PCB have not been revised.

REAGENTS:

1. Hexane, pesticide quality.
2. Florisil, 30/48 mesh sieved from 30/60 mesh. After sieving, dry at 105 °C for 45 min. Mix the cooled Florisil with 3% (w/w) distilled water.
3. Nitrogen, purified.
4. Stock standard solution of the PCB in methanol or isooctane (commercially available).*

*See SPECIAL PRECAUTIONS.

EQUIPMENT:

1. Sampler: 13-mm glass fiber filter without binders in a Swinnex cassette (Cat. No. SX 0001300, Millipore Corp.) followed by a glass tube, 7 cm long, 6 mm OD, 4 mm ID containing two sections of 30/48 mesh deactivated Florisil. The front section is preceded by glass wool and contains 100 mg and the backup section contains 50 mg; urethane foam between sections and behind the backup section. Join the cassette and Florisil tube with PVC tubing, 3/8" L x 9/32" OD x 5/32" ID, on the outlet of the cassette and with another piece of PVC tubing, 3/4" L x 5/16" OD x 3/16" ID, complete the union.
2. Personal sampling pump, 0.05 to 0.2 L/min, with flexible connecting tubing.
3. Tweezers.
4. Vials, glass, 4- and 7-mL, with aluminum or PTFE-lined caps.
5. Gas chromatograph, electron capture detection (^{63}Ni), integrator and column (page 5503-1).
6. Volumetric flasks, 10-mL and other convenient sizes for preparing standards.
7. Syringe, 10-µL.

SPECIAL PRECAUTIONS: Avoid prolonged or repeated contact of skin with PCB and prolonged or repeated breathing of the vapor [1,2,13].

SAMPLING:

1. Calibrate each personal sampling pump with a representative sampler in line.
2. Break the ends of the Florisil tube immediately before sampling. Connect Florisil tube to Swinnex cassette and attach sampler to personal sampling pump with flexible tubing.
3. Sample at an accurately known flow rate between 0.05 and 0.2 L/min for a total sample size of 1 to 50 L.

   NOTE: At low PCB concentrations, the sampler was found to be efficient when operated at flow rates up to 1 L/min, for 24 hours [8]. Under these conditions, the limit of detection was 0.02 µg/m³.
4. Transfer the glass fiber filters to 7-mL vials. Cap the Florisil tubes with plastic (not rubber) caps and pack securely for shipment.

SAMPLE PREPARATION:

5. Place the glass wool and 100-ml Florisil bed in the same 7-mL vial in which the filter was stored. Add 5.0 mL hexane.

   NOTE: For surface wipe samples, extract each gauze pad with 25 mL hexane [7].
6. In a 4 mL vial, place the 50-mg Florisil bed including the two urethane plugs. Add 2.0 mL hexane.
7. Allow to stand 20 min with occasional agitation.

CALIBRATION AND QUALITY CONTROL:

8. Calibrate daily with at least five working standards over the range 10 to 500 ng PCB/mL.
   a. Add known amounts of stock standard solution to hexane in 10-mL volumetric flasks and dilute to the mark.
   b. Analyze together with samples and blanks (steps 11 and 12).
   c. Prepare calibration graph (sum of areas of selected peaks vs. ng PCB/mL).
9. Determine desorption efficiency (DE) at least once for each lot of glass fiber filters and Florisil used for sampling in the calibration range (step 8). Prepare three tubes at each of five levels plus three media blanks.
   a. Remove and discard back sorbent section of a media blank Florisil tube.
   b. Inject known amounts of stock standard solution directly onto front sorbent section and onto a media blank filter with a microliter syringe.
   c. Cap the tube. Allow to stand overnight.
   d. Desorb (steps 5 through 7) and analyze together with working standards (steps 11 and 12).
   e. Prepare a graph of DE vs. µg PCB recovered.
10. Analyze three quality control blind spikes and three analyst spikes to ensure that the calibration graph and DE graph are in control.

MEASUREMENT:

11. Set gas chromatograph according to manufacturer's recommendations and to conditions given on page 5503-1. Inject sample aliquot manually using solvent flush technique or with autosampler.
    NOTE 1: Where individual identification of PCB is needed, a procedure using a capillary column may be used [14].
    NOTE 2: If peak area is above the linear range of the working standards, dilute with hexane, reanalyze and apply the appropriate dilution factor in calculations.
12. Sum the areas for five or more selected peaks.

CALCULATIONS:

13. Determine the mass, ng (corrected for DE) of PCB found on the glass fiber filter (w) and in the Florisil front (W_f) and back (W_b) sorbent sections, and in the average media blank filter (B) and front (B_f) and back (B_b) sorbent sections.
    NOTE: If $W_b > W_f/10$, report breakthrough and possible sample loss.
14. Calculate concentration, C, of PCB in the air volume sampled, V (L):

$$C = \frac{(W + W_f + W_b - B - B_f - B_b) \cdot 10^{-3}}{V}, \text{ mg/m}^3.$$

EVALUATION OF METHOD:

This method uses 13-mm glass fiber filters which have not been evaluated for collecting PCB. In Method S120, however, Aroclor 1242 was completely recovered from 37-mm glass fiber filters using 15 mL isooctane [12,15,16]. With 5 mL of hexane, Aroclor 1016 was also completely recovered from 100-mg Florisil beds after one-day storage [5]. Thus, with no adsorption effect likely on glass fiber filters for PCB, 5 mL hexane should be adequate to completely extract PCB from combined filters and front sorbent sections. Sample stability on glass fiber filters has not been investigated. Breakthrough volume was >48 L for the Florisil tube at 75% RH in an atmosphere containing 10 mg/m³ Aroclor 1016 [5].

REFERENCES:

[1] Criteria for a Recommended Standard...Occupational Exposure to Polychlorinated Biphenyls, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 77-225 (1977).

[2] Current Intelligence Bulletin 7, Polychlorinated Biphenyls (PCBs), U.S. Department of Health and Human Services, Publ. (NIOSH) 78-127 (1975).
[3] Hutzinger, O. S. Safe and V. Zitko. The Chemistry of PCBs, CRC Press, Inc., Cleveland, OH (1974).
[4] Foreman, W. T., and T. F. Bidleman, "Vapor Pressure Estimates of Individual Polychlorinated Biphenyls and Commercial Fluids Using Gas Chromatographic Retention Data," J. Chromatogr. 330: 203-216 (1985).
[5] NIOSH Manual of Analytical Methods, 2nd. ed., V. 1, P&CAM 244, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 77-157-A (1977).
[6] User check, Southern Research Institute, NIOSH Sequence #4121-U (unpublished, January 25, 1984).
[7] Kominsky, J. Applied Ind. Hyg. 1 (4): R-6 (1986).
[8] NIOSH Health Hazard Evaluation Report, HETA 85-289-1738 (unpublished, 1986).
[9] Hofstader, R. A., C. A. Bache, and D. J. Lisk. Bull. Environ. Contam. Toxicol., 11:136 (1974).
[10] NIOSH Manual of Analytical Methods, 2nd ed., V. 4, S120, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 78-175 (1978).
[11] Ibid, V. 2, S121, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 77-157-B (1977).
[12] Ibid, Vol. 1, P&CAM 253.
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[15] Backup Data Report for S120, prepared under NIOSH Contract 210-76-0123, available as "Ten NIOSH Analytical Methods, Set 2," Order No. Pb 271-464 from NTIS, Springfield, VA 22161.
[16] NIOSH Research Report-Development and Validation of Methods for Sampling and Analysis of Workplace Toxic Substances, U.S. Department of Health and Human Services, Publ. (NIOSH) 80-133 (1980).

METHOD REVISED BY: James E. Arnold, NIOSH/DPSE; S120 originally validated under NIOSH Contract 210-76-0123.

Table 1. Composition of some Aroclors [3].

Major Components	Aroclor 1016	Aroclor 1242	Aroclor 1254
Biphenyl	0.1%	<0.1%	<0.1%
Monochlorobiphenyls	1	1	<0.1
Dichlorobiphenyls	20	16	0.5
Trichlorobiphenyls	57	49	1
Tetrachlorobiphenyls	21	25	21
Pentachlorobiphenyls	1	8	48
Hexachlorobiphenyls	<0.1	1	23
Heptachlorobiphenyls	none detected	<0.1	6
Octachlorobiphenyls	none detected	none detected	none detected

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APPENDIX C

APPENDIX C

LEVELS OF PROTECTION

When remediation activities are conducted where atmospheric contamination is known or suspected to exist, personnel protective equipment must be worn. Personnel protective equipment is designed to prevent/reduce skin and eye contact as well as inhalation or ingestion of the chemical substance.

Personnel equipment to protect the body against contact with known or anticipated chemical hazards has been divided into four categories:

1. Level A protection should be worn when the highest level of respiratory, skin, eye, and mucous membrane protection is needed.

   a. Personal Protective Equipment

   --Positive-pressure (pressure demand), self-contained breathing apparatus (MSHA/NIOSH approved).
   --Fully encapsulating chemical-resistant suit.
   --Gloves, inner, chemical resistant.
   --Gloves, outer, chemical resistant.
   --Boots, chemical resistant, steel toe and shank (depending on suit boot construction, worn over or under suit boot).
   --Underwear, cotton, long-john type.*
   --Hard hat (under suit).

--Coveralls (under suit).
--Two-way radio communications (intrinsically safe).

*Optional

2. Level B protection should be selected when the highest level of respiratory protection is needed, but a lesser level of skin and eye protection is required. Level B protection is the minimum level recommended on initial site entries until the hazards have been further identified and defined by monitoring, sampling, and other reliable methods of analysis, and personnel equipment corresponding with those findings is utilized.

a. Personal Protective Equipment

--Positive-pressure (pressure-demand) self-contained breathing apparatus (MSHA/MIOSH approved).
--Chemical-resistant clothing (overalls and long-sleeved jacket, coveralls, hooded two-piece chemical splash suit, disposable chemical-resistant coveralls).
--Coveralls (under splash suit).*
--Gloves, outer, chemical resistant.
--Gloves, inner, chemical resistant.
--Boots, outer, chemical resistant, steel toe and shank.
--Boots, outer, chemical resistant.*

--Two-way radio communications (intrinsically safe).
--Hard hat.

*Optional

3. Level C protection should be selected when the type of airborne substance is known, concentration measured, criteria for using air-purifying respirators met, and skin and eye exposure is unlikely. Periodic monitoring of the air must be performed.

a. Personal Protective Equipment

--Full-face, air-purifying respirator (MSHA/NIOSH approved).
--Chemical-resistant clothing (one-piece coverall, hooded two-piece chemical splash suit, chemical-resistant hood and apron, or disposable chemical-resistant coveralls).
--Gloves, outer, chemical resistant.
--Gloves, inner, chemical resistant.*
--Boots, steel toe and shank, chemical resistant.
--Boots, outer, chemical resistant.*
--Cloth coveralls (inside chemical protective clothing).*
--Two-way radio communications (intrinsically safe).
--Hard hat.
--Escape mask.*

*Optional

4. Level D will be considered the minimum protection level for work conducted in the exclusion zone.

   a. Personal Protective Equipment.

      --Disposable coverall suit which completely covers worker's uniform.
      --Hard hats.
      --Steel-toe boots.
      --Monogoggles rather than safety glasses.

Refer to the United States Environmental Protection Agency, Office of Emergency and Remedial Response, Environmental Response Division, Interim Standard Operating Safety Procedures for full details.

APPENDIX D

APPENDIX D

ORIGINAL (Red)

Emergency Information

Pertinent emergency telephone numbers are listed below. This information must be provided to all personnel prior to site entry and be conspicuously displayed at the project command post.

On-site emergency telephone numbers:

Facility/Title	Telephone Number
Fire	911
Police	911
Hospital, Prince George	301/618-2000
Ambulance,	911
National Response Center	*800-424-8802
Poison Center	717-531-6111
CHEM TREC	800-424-9300

*Required call for any reportable quantity of a hazardous waste (refer to "1990 Emergency Response Guidebook" USDOT Publication 5800.5).

Client Representative:	
Chester White	202/714-4723
REWAI Project Coordinator	301/876-0280
Mike Haufler	

HOSPITAL ROUTE

Prince George Hospital is one mile north of the site, Figure 1. From the site take a right on Columbia Park Road. Go

left (east) on John Hanson Highway, Route 50, for approximately one mile. Exit on Landover Road, Route 202 east. After 3/4 of a mile look for signs to the hospital.

APPENDIX E

ORIGINAL
(Red)

APPENDIX E

SITE SAFETY ASSESSMENT FORM
RODGERS ELECTRIC SITE

Job Number 91130
Prepared By_____ Date_____
Location: Cheverly, Maryland Status_____
Facility Description_____
_____

Site Phone Number_____

Existing Information: Detailed_____ Preliminary_____ None_____

Description of Problem _____
_____
_____

Type of Work Required_____
_____
_____
_____

Miss Utility Notified? 1-800-257-7777 ____ yes ____ no

Municipality:_____ One Call Serial No. _____

Local Emergency: Authorities Notified ____ yes ____ no
Emergency Phone No. _____

ORIGINAL
(Red)

Utilities Survey	Present		Contacted		Utility Name	Phone Number
	Yes	No	Yes	No		
Gas	___	___	___	___	_____	_____
Fuel	___	___	___	___	_____	_____
Water	___	___	___	___	_____	_____
Electrical	___	___	___	___	_____	_____
Telephone	___	___	___	___	_____	_____
Video	___	___	___	___	_____	_____
Other	___	___	___	___	_____	_____

*Describe Known Site Hazards (include sketch plan) _____

_____

_____

*Suspected Hazards_____

*Plan to Control Hazards_____

_____

*If work area contains hazardous materials, complete and go to page 2.

Hazardous Material Form: Gas_____ Liquid_____ Solid_____

Containment: Groundwater_____ Free Product_____ Soils_____
Lagoon_____ Seep_____ Drum_____ Other_____

Material Characteristics: Ignitable_____ Reactive_____
Volatile_____ Toxic_____ Radioactive_____ Corrosive_____

Hazardous Materials (Add Hazardous Substance Data Sheets for each compound):

Compound	Concentration	Warning Properties

Personnel Protection Required: A_____ B_____ C_____ D_____

Modifications or Specialized Equipment_____
_____

Detection Equipment_____
Action Level_____
Action Planned_____

Decontamination Procedures:

Personnel _____

Protective Equipment _____

Support Equipment _____

Sampling Equipment _____

Other (describe) _____

Assigned On-site Personnel	Task	Date:Trained	Physical

Plan Approved By _____ Date _____

Safety Officer _____ Date _____